DEPARTMENT OF THE ARMY
Omaha District, Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

:NOTICE: Failure to acknowledge : :all amendments may cause rejec- : :tion of the bid. See FAR : :52.214-3 of Section 00100 :	Solicitation No. DACA45 03 B 0005 Date of Issue: 08 AUG 2003 **Date of Opening: 16 SEP 2003**

Amendment No. 0004
4 September 2003

SUBJECT: Amendment No. 0004 to Specifications and Drawings for Construction of (FY03) NORTHCOM HQ BEDDOWN ADDITION, BMC, AND AT/FP IMPROVEMENTS, PETERSON AFB, COLORADO. Solicitation No. DACA45 03 B 0005.

TO: Prospective Bidders and Others Concerned

1. The specifications and drawings for subject project are hereby modified as follows (revise all specification indices, attachment lists, and drawing indices accordingly).

a. Specifications. (Descriptive Changes.)

(1) **All Specification Sections with Submittal Paragraphs**, revise the submittal paragraph in each section to agree with the information issued on modified Submittal Register included with this amendment. Reissued or new sections added by this amendment do not require revision.
(2) **Comprehensive Interior Design, page CID-10**, revise quantity of S-3 "Workstation Task Chair" to read "23" in lieu of "37".
(3) **Comprehensive Interior Design, page CID-11**, revise quantity of S-3 "Workstation Task Chair" to read "42" in lieu of "56".
(4) **Comprehensive Interior Design, page CID-39**, revise quantity of S-3 "Workstation Task Chair" to read "439" in lieu of "453".
(5) **Section 00020, page 1**, paragraph 1.3.1.3, after "Provide and install" add "sole source pre-wired".
(6) **Section 00020, page 1**, paragraph 1.3.1.4, after "Provide and install" add "sole source pre-wired".
(7) **Section 00020, page 2**, paragraph 1.3.1.5, to the end of this paragraph add the sentence "Loose furnishing items are not sole source."
(8) **Section 00020, page 2**, paragraph 1.3.1.6, to the end of this paragraph add the sentence "Loose furnishing items are not sole source."
(9) **Section 00020, page 3**, paragraph 1.3.1.7, delete entire paragraph and substitute the following:

"Provide and install security systems as required by Section 13720 ELECTRONIC SECURITY SYSTEM, and Section 16751, CLOSED CIRCUIT TELEVISION SYSTEMS. This bid option includes providing and installing the security hardware included in Section 08710

DOOR HARDWARE. The option excludes basic bid infrastructure required to support all security systems, and hardware such as conduit, junction boxes, rough-in boxes, power and pull wires. The conveyance system for the vehicle traffic barriers is part of the Basic Bid item."

(10) **Section 01025, page 1**, delete text of Part 1 General "An existing...greatest extent possible," and substitute the following:

"The Peterson AFB West Gate is the standard gate for construction Contractor access and is described in specification Section 00800 SPECIAL CONTRACT REQUIREMENTS. For security reasons, the government cannot expedite delivery of construction materials, or perishables. All commercial vehicles will be searched, and congestion may occur. The Government will not be responsible for delays of construction materials through the West Gate. The Government has an existing Contractor construction gate and road labeled Temporary North East Gate Access on sheet G002 that shall be used during the entire contract duration within the limits stated. See paragraph 1.5 for Scheduling of Construction Gate. All concrete trucks, all vehicles with volumetric loads, vehicles carrying structural steel, large precast concrete members, large mechanical equipment, tankers (see para. 1.4.2 for fuel trucks and Section 00800 para. 1.16.2), construction cranes, wide loads, any load on flat bed trailer, shall be scheduled to use the Contractor access gate. The Contractor shall provide and install all work, materials, management, supervision, guard house and Guards as described in this specification. After construction, the Contractor shall restore easements, utilities and roads in accordance with work herein and coordinated with the City of Colorado Springs. Existing condition of the construction gate, road, fence and utilities shall conform to the requirements as specified."

(11) **Section 01025, page 3**, paragraph 1.5, lines 1 through 9, delete "The Contractor may schedule...from 0600 to 1800," and substitute the following:

"The Contractor shall only use the gate for an aggregate total of 28 weeks during the entire contract duration. The minimum scheduled usage shall be one day of normal allowed operating hours between 0600 to 1800 hours (6:00 am to 6:00 pm). A one week duration is considered five (5) calendar, twelve (12) hour work days (Monday through Friday). The Contractor must schedule use of the gate with the Contracting Officer (CO). The Contractor shall submit each scheduled usage to the CO fourteen (14) days prior to gate usage. The Government will not be responsible for schedule delays caused by a gate access schedule that is untimely submitted and does not provide the 21SFS fourteen (14) days prior review. The Contractor may submit a schedule for approval to use the gate for one day, one week, multiple weeks, or month(s) at one time within the limits of the aggregate total usage. The Contracting Officer will coordinate approval with the 21SFS organization for security approval. The gate shall not be opened until approval has been issued, and direction is provided by the CO."

(12) **Section 01330, Submittal Register**, delete the Submittal Register in its entirety and substitute the attached modified Submittal Register.

(13) **Section 01330**, delete all "DO", "G-DO" or "G-DO or" references in the following paragraphs and locations: 1.3.1, 1.8, 1.11.1.1, 1.13.1, INSTRUCTIONS, ENG FORM 4288 (RMS) and INSTRUCTIONS ENG FORM 4025.

(14) **Section 01330, Page 9**, paragraph 1.13, paragraph title, before "GOVERNMENT APPROVED SUBMITTALS", insert "FINAL COPY OF".

(15) **Section 01451A, Page 2**, paragraph 3.1, lines 6 to the end of the paragraph, delete "system shall cover ... activities at the site." and substitute:

"system shall cover all design-construction and construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence.

The site project superintendent will be held responsible for the quality of work on the job. The site project superintendent is subject to removal by the Contracting Officer for non-compliance with either the established quality control system or quality requirements specified in this contract. The site project superintendent in this context shall be the highest-level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer."

(16) **Section 01451A, Page 3**, paragraph 3.2.1 a, last 2 lines, delete "The staff shall include a CQC system ... project superintendent." and substitute:

"The staff shall include a CQC System Manager who shall report to the Project Manager or someone higher in the Contractor's organization. Project Manager in this context shall mean the individual with responsibility for the overall management of the project, including quality and production."

(17) **Section 01451A, Page 4**, paragraph 3.4.1, lines 3 thru 5, delete "The Safety and Health Manager ... the CQC staff."

(18) **Section 01451A, Page 11**, to the end of paragraph 3.9 h., add:

"Include information identified by the "Responsible Individual(s)" for Safety as outlined in SECTION 01400, SPECIAL SAFETY REQUIREMENTS."

(19) **Section 02220, page 3**, paragraph 1.3, delete all requirements and submittal items listed for "SD-07 Certificates" and "SD-11 Closeout Submittals".

(20) **Section 02741, page 5**, under SD-03 Product Data, submittal item "Material Acceptance and Percent Payment", delete "and Percent Payment"; Also, from the submittal description requirements, delete "and pay calculations".

(21) **Section 02811a, page 5**, paragraph 1.6, under SD-02 Shop Drawings, submittal for "Watering Plan", to the end of the submittal description, add: "Coordinate with Section 00800 SPECIAL CONTRACT REQUIREMENTS."

(22) **Section 05520, page 3**, paragraph 1.4, under SD-06 Test Reports, add submittal item reading:

"Handrails and Railing Systems; G-AE"

(23) **Section 08210, Page 2**, paragraph 1.2, under SD-03 Product Data, submittal item for "Sample warranty", delete "Sample".

(24) **Section 08600, page 3**, paragraph 1.3, under SD-02 Shop Drawings, add the following item:

"Calculations; G-AE

Calculations stamped by a Colorado registered Professional Engineer."

(25) **Section 08600, page 6**, after paragraph 2.3.4, add the following new paragraph:

"2.3.5 Structural Performance

"Design skylight to support a minimum live load of 1.44 kPa (30 psf). Limit deflection to the maximum allowed by ASTM industry standards."

(26) **Section 08710, page 6**, paragraph 2.3.3.5, delete this paragraph in its entirety and substitute the following:

"2.3.3.5 Cipher Locksets

Heavy duty, electronically programmable, battery powered, cylindrical lockset, with 12-button keypad operation, and interchangeable cylinder lock over-ride, and lever handle actuation. Programmable through the lockset, by plug-in device, or lockset keypad, for up to 50 different personal identification numbers (PIN) of 3- to 6-digits. Lockset always unlocked from inside. Lockset unlockable by authorized persons to allow passage operation for programmable duration of time. Battery pack of standard, commercially available batteries, providing 65,000 cycle or 2-year minimum life. Visual low-battery indicator."

(27) **Section 08710, pages 10, 11, and 13**, revise paragraph 3.7 at each Cipher Lock listing, for Hardware Sets 4, 6, 6B, 8, 21, and 23, to read the following:

"1 Cipher Lock, Finish 630 or 626."

(28) **Section 10270, Page 5**, paragraph 1.3, delete submittal description reading "SD-08 Calculations" and substitute "SD-05 Design Data".

(29) **Section 10270, page 6**, after paragraph 2.1.1.2, add the following new paragraph:

"2.1.1.3 Perforated Panels

Perforated panels shall be steel, perforated, providing 25-percent open surface area to provide air distribution capacity of 725 CFM at 0.1-inch H_20 static pressure. Perforated panels shall be capable of supporting 560 kg concentrated load."

(30) **Section 10270, page 7**, after paragraph 2.1.2.2, add the

following new paragraph:

"2.1.2.3 High Pressure Laminate

High pressure laminate surfacing shall conform to NEMA LD 3, Grade HW 62. Total system electrical resistivity from the wearing surface of the floor to the ground connection shall be between 150,000 ohms and 20,000,000,000 ohms."

(31) **Section 13720, page 6**.

a) Paragraph 1.2, in the third paragraph, delete the last sentence ("Submit the proposed...via the C.O.") and substitute the following:

"Submit the proposed zoning in a narrative and graphical form to the SSO/21SFS via the Contracting Officer."

b) Paragraph 1.2, after the last sentence of the second paragraph ("Electronic equipment...47 CFR 15.") add the following:

"Submit the proposed zoning in a narrative and graphical form to the SSO/21SFS via the Contracting Officer."

(32) Section 13720, page 12, to the end of paragraph 1.3, add the following:

"Ensure that all data and technical requirements for the CCTV and ESS are fully coordinated and submitted as one complete system under the submittal requirements of this section. Refer to Section 16751 CLOSED CIRCUIT TELEVISION SYSTEMS for associated submittal requirements."

(33) Section 13720, page 15, paragraph 1.3.4.4, after the last sentence ("The graphics examples...scheduled need date," add the following:

"The Contractor shall submit an Autocad floor plan as a submittal before substantial completion of the building. This floor plan shall show security zones and protected areas."

(34) Section 13720, page 17, paragraph 1.5.1, after the last sentence ("Approval of the planned...to the training,") add the following:

"The Contractor shall provide on-site user training on the keypad explaining the keypad use and features."

(35) Section 13720, Page 22, following paragraph 1.8.10, add:

"1.9 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will

review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Final System Drawings; G-AO

The Contractor shall maintain a separate set of up-to-date drawings for the ESS as described above. In addition to being complete and accurate, this set of drawings shall be kept neat and shall not be used for installation purposes. Final drawings shall be submitted to the Government with the final endurance test report and shall be finished drawings on vellum and CD-ROM.

SD-03 Product Data

Test Procedures; G-AO

Written notification of planned testing shall be given to the Government at least 14 days prior to the test; notice shall not be given until after the Contractor has received written approval of the specific test procedures. Test procedures shall explain in detail, step-by-step actions and expected results, demonstrating compliance with the requirements specified.

SD-05 Design Data

Electronic Security System; G-AE

The Contractor shall provide an Electronic Security System (ESS) package as described and shown above in paragraph 1.2 SYSTEM DESCRIPTION, including installation of any Government Furnished Equipment. This package shall include technical data packages, computer software, and all pertinent system data and/or manuals necessary for evaluation of the system.

Zoning Meeting; G-AO

The Contractor shall schedule a meeting with the Contracting Officer's Representative and the end user to determine the zoning of the security areas 14 days prior to system design commencement. Submit the proposed zoning in a narrative and graphical form to the 550/21 SFS via the COR.

SD-06 Test Reports

Test Reports; G-AO

The Contractor shall perform pre-delivery testing, site testing, and adjustment of the completed ESS. The Contractor shall provide personnel, equipment, instrumentation, and supplies necessary to perform testing. Test reports shall be used to document results of the tests. Reports shall be delivered to the Government within 7 days after completion of each test.

SD-10 Operation and Maintenance Data

Training; G-AO

The Contractor shall conduct training courses for designated personnel in the maintenance and operation of the system as specified. The training shall be oriented to the specific system being installed. Training manuals shall be developed and delivered as described above.

Operation and Maintenance Instructions; G-AO

Operation, Maintenance, Hardware and other required manuals shall be developed as described above and submitted to the COR. At a minimum, the manual(s) shall fully describe all equipment furnished; fully explain all procedures and instructions for the operation of the system; and provide descriptions of maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components."

(36) **Section 13270, page 26**, paragraph 2.4.1.1, after the last sentence ("Loss of primary...as an alarm,") add the following:

"The security system shall be fed from the generator circuits."

(37) **Section 13270, page 28**, paragraph 2.4.2.2, to the end of this paragraph add the following sentence:

"Provide a ground fault interrupter inside the local processor's enclosure. This is not a Government furnished device."

(38) **Section 13270, page 31**, delete paragraphs 2.7 and 2.7.1 in their entirety.

(39) **Section 13270, page 32**, delete paragraph 2.8.1.1 and substitute the following:

"2.8.1.1 Magnetic Stripe

There are no magnetic stripe card readers. All card readers will be proximity card readers."

(40) **Section 15080, pages 5 and 6**, paragraph 1.2, lines 5 thru 7, delete "Section 02552 PRE-ENGINEERED UNDERGROUND HEAT DISTRIBUTION SYSTEM, Section 02553 HEAT DISTRIBUTION SYSTEMS IN CONCRETE TRENCHES, Section 02554 ABOVEGROUND HEAT DISTRIBUTION SYSTEM, and ".

(41) **Section 16261, page 9**, paragraph 2.1, to the end of this paragraph add the following:

"u. The drive shall comply with FCC Part 15 subpart J rules and regulations regarding radio frequency interference. Line noise shall be no greater than 3% harmonic distortion and no more than a 16,400 volt-microsecond commutation notch area, in accordance with IEEE 519."

(42) **Section 16415, page 23**, paragraph 2.13.1, to the end of this paragraph add the following:

"Provide only low mercury lamps. All lamps will be either no mercury or low mercury."

(43) **Section 16415, page 46**, after paragraph 3.10.1, add the following new paragraph:

"3.10.1 Busway Installation

Busways penetrating walls shall have wall flanges installed on both surfaces of walls. Wall openings shall be approximately 6.4 mm larger than the busway on each on the 4 busway sides, and openings shall be sealed with a suitable compound. Fire barriers shall be provided when penetrating fire rated walls. Fire barriers shall have a rating equal to the fire wall rating. A weather barrier shall be used when a busway penetrates an exterior wall. Busways shall not be supported at intervals not exceeding 3 m and shall be seismically braced to prevent lateral movement."

(44) **Section 16415, page 53**, after paragraph 3.20.8, add the following new paragraph:

"3.20.9 Busway Testing

a. Insulation Resistance phase to phase, all combinations.

b. Insulation resistance phase to ground, each phase.

c. AC or DC high potential test.

d. Phase rotation test from each line side to each load side equipment for each run of busway. Perform rotation test after complete installation of busway."

(45) **Section 16751, page 16**, paragraph 2.6.1.1, delete "8.8 by 6.6 mm (2/3 inch) format".

(46) **Section 16751, page 17**, paragraph 2.6.2.1, delete "12.8 by 9.6 mm (1 inch) format".

b. Specifications (New and/or Revised and Reissued). Delete and substitute or add specification pages as noted below. The substituted pages are revised and reissued with this amendment. Areas of text changed on the reissued pages are denoted by underlining for added text and ~~strikeout~~ of deleted text. (All portions of reissued specification pages shall apply whether or not changes thereon have been indicated by underlining or strikeout.)

Pages Deleted	Pages Substituted or Added
00800	00800
01020	01020
-	15565
-	15702
16710	16710

c. Drawings (Not Reissued). The following drawings are revised as indicated below with latest revision date of 4 September 2003. These drawings are not reissued with this amendment.

(1) Dwg. AF 610-284-02, Sheet A1.01, at structural grid 3 between Y

and Z, delete reference to "1/A1.01/A4.03".

(2) Dwg. AF 610-284-02, Sheet A1.21, between grids 4.7 and 5, and between grids Y and Z, change window type "1" to read window type "2".

(3) Dwg. AF 610-284-02, Sheet A3.04, correct title reference for section 1 to read "1/A3.04/A3.04" in lieu of "1/A3.04/A3.05". Correct title reference for section 2 to read "2/A3.04/A3.04" in lieu of "1.A3.04/A3.05".

(4) Dwg. AF 610-284-02, Sheet A4.03, elevation 3/A4.03, between grids 1 and 2, correct section cut "3/A4.03/A4.03" to read "3/A4.03/A4.04".

(5) Dwg. AF 610-284-02, Sheet A4.04

a) Correct SOUTH ENLARGED COURT ELEVATION to read "2/A4.03/A4.04" in lieu of "3/A4.03/A4.04".

b) Correct AIR SHAFT ELEVATION to read "4/A4.03/A4.04" in lieu of "3/A4.03/A4.04".

(6) Dwg. AF 610-284-02, Sheet A5.06, add the following general note:

"GENERAL NOTES

1. Provide continuous bentonite waterproofing under slabs, on the earth side of all foundation and pit walls, around footings where in contact with soil, and under elevator pits and sump pits. Provide bentonite waterstops at subgrade intersections of concrete walls and footings, and around all slab penetrations, including elevator jackshafts. Comply with manufacturer's installation recommendations."

(7) Dwg. AF 610-284-02, Sheet A5.07, add the following general note:

"GENERAL NOTES

1. Provide continuous bentonite waterproofing under slabs, on the earth side of all foundation and pit walls, around footings where in contact with soil, and under elevator pits and sump pits. Provide bentonite waterstops at subgrade intersections of concrete walls and footings, and around all slab penetrations, including elevator jackshafts. Comply with manufacturer's installation recommendations."

(8) Dwg. AF 610-284-02, Sheet A5.07, at the top of Section 3/A5.07, correct the Base Bid detail reference to read "5/A8.02" in lieu of "4/A8.02".

(9) Dwg. AF 610-284-02, Sheets A6.02 and A6.03:

a) In accordance with attached sketch A602/A603, insert the room finishes for added rooms B030b, B044, B062, 1037, 1040a, 1045a, 1067a, 1105, 1106, 1107, 1108, 1121a, 1129a, and 2148a.

b) For the rooms listed below, under "MATERIAL" column for "CEILING" and "REMARKS" column, revise the ceiling material and remarks information to be as identified below:

Room No.	**Ceiling Material**	**Remarks**
B029	EXISTING ACT	*8
B030	EXISTING ACT	
B035	EXISTING ACT	
B036	EXISTING ACT	
B041	EXISTING ACT	
B070	EXP/GWB	

B070a	GWB	
B070c	ACT-1	
B073a	EXP	
B079	GWB	
B116	ACT-1	
B120	ACT-1	
B121	EXP	
B131	ACT-1	
B132	ACT-1	
1031	EXISTING ACT	*8
1066	EXISTING ACT	*8
1067	EXISTING ACT	*8
1116	ACT	
1127	GWB	
1149	EXP	
2001	ACT	
2074a	ACT-2	
2088	EXISTING ACT	*8
2089	EXISTING ACT	*8
2111	EXISTING ACT	*8
2112a	EXISTING ACT	*8
2130	EXPOSED SKYLIGHT	
2137	ACT-1	
2138	EXP	
2151	ACT-1	
2152	EXPOSED SKYLIGHT	

c) Under "FINISH NOTES", after note 7 add the following new note:

"8. REPLACE ACT WHERE DAMAGED DURING CONSTRUCTION WITH MATCHING ACT."

d) Under "GENERAL FINISH NOTES", after note 5 add the following new note:

"6. IN ALL EXISTING ROOMS, PROTECT EXISTING FLOOR FINISHES IN PLACE DURING DEMOLITION AND CONSTRUCTION. REPLACE EXISTING FLOOR FINISHES WHERE DAMAGED BY DEMOLITION OR CONSTRUCTION UNDER THIS CONTRACT WITH MATCHING FINISHES."

(10) Dwg. AF 610-284-02, Sheet A9.05, add the following general note:

"GENERAL NOTES

1. Provide continuous bentonite waterproofing under slabs, on the earth side of all foundation and pit walls, around footings where in contact with soil, and under elevator pits and sump pits. Provide bentonite waterstops at subgrade intersections of concrete walls and footings, and around all slab penetrations, including elevator jackshafts. Comply with manufacturer's installation recommendations."

(11) Dwg. AF 610-284-02, Sheet A7.03, in detail 8/A7.03, delete "vapor retarder" and substitute "bentonite waterproofing".

(12) Dwg. AF 610-284-02, Sheet A8.04, delete "extruded type IV polyurethane" and substitute "rigid".

(13) Dwg. AF 610-284-02, Sheet A9.13, detail 3/A9.13 erroneously indicates several items to be by "others". All items indicated in this

detail are in the scope of construction.

(14) Dwg. AF 610-284-02, Sheet C1.05, note #6, revise second sentence of this note to read "in accordance with the provisions of Specification Section 01025" in lieu of "in accordance with Specification Section 00800".

(15) Dwg. AF 610-284-02, Sheet C1.06, note #6, revise second sentence of this note to read "in accordance with the provisions of Specification Section 01025" in lieu of "in accordance with Specification Section 00800".

(16) Dwg. AF 610-284-02, Sheet C1.07, note #6, revise second sentence of this note to read "in accordance with the provisions of Specification Section 01025" in lieu of "in accordance with Specification Section 00800".

(17) Dwg. AF 610-284-02, Sheet L1.11, delete this sheet in its entirety. It is no longer applicable.

(18) Dwg. AF 610-284-02, Sheet L4.11, delete this sheet in its entirety. It is no longer applicable.

(19) Dwg. AF 610-284-02, Sheet M1.05, all systems and equipment in Rooms B057 and B061 are existing.

(20) Dwg. AF 610-284-02, Sheet M1.06, Keyed notes (those shown in hexagons) show adjacent to existing systems (shown with dashed linework) do not apply to this project.

(21) Dwg. AF 610-284-02, Sheet M3.02

a) Create new items RTU-14 and RTU-15, which will have the same values as scheduled for RTU-13.

b) Delete the reference to Bid Option numbers on the Air Handling Unit Schedule. Bid option numbers can be obtained from the pricing schedule.

(22) Dwg. AF 610-284-02, Sheet M1.21, under GENERAL NOTES, after Note 9, add the following new note:

"10. Combustion air and combustion products discharge from the unit heaters in the Parking Garage shall be 152mm, 24-gauge sheet metal. Control damper at the Southeast end of the garage shall be the same size as the louver (approximately 2134mm X 1829mm)."

(23) Dwg. AF 610-284-02, Sheet M1.21, under GENERAL NOTES, after Note 25, add the following new notes:

"26. Provide one 24MM OSP FO cable from Building B2, Room B009 to the GOQ Xbox. The distance from Room B009 to existing manhole CMH309 is show on Sheet EP.02. In addition to the distance from B009 to CMH309 add 1000 meters to get from manhole CMH309 to the GOQ Xbox.

27. Provide an AMP patch panel to match existing in B009, and provide an ADC OCM-9400000, 96-port, ST, cross connect panel in the pedestal."

(24) Dwg. AF 610-284-02, Sheet E3.08, under GENERAL NOTES, after Note 1, add the following new note:

"2. Add a smoke detector in lobby of elevator. Mount detector under second level bridge."

(25) Dwg. AF 610-284-02, Sheet E3.09, under GENERAL NOTES, after Note 1, add the following new note:

"2. Add a smoke detector in lobby of elevator. Mount detector under second

level bridge."

(26) Dwg. AF 610-284-02, Sheet E5.10, under GENERAL NOTES, after Note 1, add the following new note:

"2. The RED Switch PDS consists of two identical parallel distribution systems, one Red and one Black, that feed common 100 mm X 100 mm outlet boxes with a double gang plaster ring at the location where the red phone is located. Install two 103 mm conduits (one Red, one Black) from the appropriate under floor tray system in the Red Switch B009 to a lockable enclosure (914 mm x 610 mm x 152 mm) with a padlock hasp in each TC. Install a 13 mm conduit from the enclosure in each TC to each Red Switch outlet box (feed the outlets from a TC on the Same floor as the outlet). There are 150 Red Switch outlets throughout the building. Each of the 150 conduits is 50m in length. Contact the Contracting Officer for the locations of user outlets. The Red Switch PDS shall not share conduits or pull boxes with any other PDS; each PDS is a separate and stand alone system."

(27) Dwg. AF 610-284-02, Sheets S1.08 through S1.14, on all sheets, for notes reading "150 mm CONCRETE SLAB ... POLYETHELENE VAPOR RETARDER ...", delete the words "POLYETHELENE VAPOR RETARDER" and substitute "BENTONITE WATERPROOFING WITH INTEGRAL VAPOR RETARDER" (each note on referenced sheets).

(28) **Create New Drawing A7.06** titled "TYPICAL METAL WALL PANEL DETAILS", and insert the details shown on Attached Sketches A-1, A-2 and A-3.

d. Drawings (Reissued). The following sheets of drawing code AF 610-284-02 are revised with latest revision date of 3 September 2003, and reissued with this amendment.

(1) Dwg. AF 610-284-02, Sheet S3.12.

2. This amendment is a part of the bidding papers and its receipt shall be acknowledged on the Standard Form 1442. All other conditions and requirements of the specifications remain unchanged. If the bids have been mailed prior to receiving this amendment, you will notify the office where bids are opened, in the specified manner, immediately of its receipt and of any changes in your bid occasioned thereby.

a. Hand-Carried Bids shall be delivered to the U.S. Army Corps of Engineers, Omaha District, Contracting Division (Room 301), 106 South 15th Street, Omaha, Nebraska 68102-1618.

b. Mailed Bids shall be addressed as noted in Item 8 on Page 00010-1 of Standard Form 1442.

3. Bids will be received until 2:00 p.m., local time at place of bid opening, 16 SEP 2003.

Attachments:
Submittal Register (Attachment to Section 01330)
Spec Pages listed in 1.b. above
Sketch A602/A603
Sketches A-1, A-2, and A-3 (for new sheet A7.06)
Drawings listed in 1.d. above

U.S. Army Engineer District, Omaha
Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

3 September 2003
mrp/4413

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		00800	SD-01 Preconstruction Submittals															
			Utility Interuption and Outage Plan		G	AO												
			Meter(s) Type(s)		G	AO												
			Watering Times		G	AO												
			Metering Reading Data		G	AO												
			Landscape Establishment Plan		G	AO												
			SD-02 Shop Drawings															
			Equipment Room Drawings	1.23	G	AO												
		01020	SD-01 Preconstruction Submittals															
			Construction Phasing Plan		G	AO												
		01025	SD-01 Preconstruction Submittals															
			Guard Qualifications		G	AO												
		01200	SD-11 Closeout Submittals															
			Equipment Warranty Booklet	1.2.5														
		02220	SD-03 Product Data															
			Demolition Work Plan		G	AO												
		02300	SD-03 Product Data															
			Earthwork															
			SD-06 Test Reports															
			Testing	3.11														
			SD-07 Certificates															
			Testing	3.11														
		02315	SD-06 Test Reports															
			Testing	3.14														
		02316	SD-06 Test Reports															
			Field Density Tests	3.4.3														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION: NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		02316	Testing of Backfill Materials	3.4.2														
		02373	SD-07 Certificates															
			Geotextile	2.1.1														
		02510	SD-03 Product Data															
			Installation	3.1														
			Waste Water Disposal Method		G	AO												
			SD-06 Test Reports															
			Bacteriological Disinfection															
		02555	SD-02 Shop Drawings															
			Distribution System	3.4.7	G	AE												
			SD-03 Product Data															
			Distribution System	3.4.7	G	AE												
			SD-07 Certificates															
			Distribution System	3.4.7	G	AO												
			Welding	1.6	G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Distribution System	3.4.7	G	AO												
		02556	SD-03 Product Data															
			Materials and Equipment	1.3.2														
			Connections to Existing Lines	3.11														
			Jointing Polyethylene Piping	1.3.1	G	AO												
			Connection and Abandonment		G	AO												
			Plan															
			SD-06 Test Reports															
			Pressure and Leak Tests	3.13.2	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		02556	SD-07 Certificates															
			Utility Work	3.11.1														
		02621	SD-07 Certificates															
			Materials	2.1														
		02630	SD-03 Product Data															
			Placing Pipe	3.3														
			SD-07 Certificates															
			Resin Certification	2.1.2														
			Resin Certification	2.1.3														
			Pipeline Testing	3.8	G	AO												
			Frame and Cover for Gratings	2.2.4														
		02722	SD-06 Test Reports															
			Sampling and testing	1.4														
			Field Density Tests	1.4.2.4														
		02741	SD-03 Product Data															
			Mix Design	2.3	G	AO												
			Contractor Quality Control	3.9	G	AO												
			Material Acceptance	3.10	G	AO												
			SD-06 Test Reports															
			Aggregates	2.1														
			QC Monitoring	3.9.2.10														
			SD-07 Certificates															
			Asphalt Cement Binder	2.2														
			Testing Laboratory	3.5														
		02748	SD-06 Test Reports															
			Sampling and Testing	3.7														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		02754	SD-03 Product Data															
			Paving	3.4														
			Mixture Proportions	2.11	G	AO												
		02762	SD-03 Product Data															
			Manufacturer's Instructions															
			SD-04 Samples															
			Compression Seals	2.1	G	AO												
			SD-06 Test Reports															
			Test Requirements	1.3	G	AO												
		02763	SD-03 Product Data															
			Equipment	1.4	G	AO												
			Composition Requirements															
			SD-06 Test Reports															
			Sampling and Testing															
			SD-07 Certificates															
			Volatile Organic Compound															
			(VOC)															
		02770	SD-06 Test Reports															
			Field Quality Control	3.8														
			SD-11 Closeout Submittals															
			Concrete	2.1														
		02811A	SD-02 Shop Drawings															
			Watering Plan		G	AO												
			SD-03 Product Data															
			Framed Instructions	3.3														
			Field Training	3.4	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		02811A	Spare Parts															
			SD-06 Test Reports															
			Field Tests	3.2	G	AO												
			SD-07 Certificates															
			Sprinkler System															
			SD-10 Operation and Maintenance															
			Data															
			Sprinkler System		G	AO												
		02840	SD-02 Shop Drawings															
			Installation	3.1	G	AE												
			Equipment		G	AE												
			SD-03 Product Data															
			Vehicle Barriers		G	AE												
			Spare Parts	1.6														
			SD-06 Test Reports															
			Field Testing	3.4														
			SD-10 Operation and Maintenance															
			Data															
			Vehicle Barriers		G	AO												
			Operating and Maintenance	3.5	G	AO												
			Instructions															
		02921A	SD-03 Product Data															
			Equipment															
			Surface Erosion Control Material	2.6														
			Chemical Treatment Material															
			Delivery	1.4.1														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		02921A	Finished Grade and Topsoil	3.2.1														
			Topsoil	2.2														
			Quantity Check	3.5														
			Seed Establishment Period	3.9														
			Maintenance Record	3.9.3.5														
			SD-04 Samples															
			Mulch	2.4	G	AO												
			SD-06 Test Reports															
			Equipment Calibration	3.1.3														
			Soil Test	3.1.4														
			SD-07 Certificates															
			Seed	2.1														
			Topsoil	2.2														
			Organic Material	2.3.1														
			Soil Conditioner															
			Mulch	2.4														
			Pesticide															
		02922A	SD-03 Product Data															
			Chemical Treatment Material															
			Delivery	1.4.1														
			Finished Grade and Topsoil	3.2.1														
			Topsoil	2.2														
			Quantity Check	3.5														
			Sod Establishment Period	3.9														
			Application of Pesticide	3.6														
			SD-06 Test Reports															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		02922A	Equipment Calibration	3.1.3														
			Soil Test	3.1.4														
			SD-07 Certificates															
			Sod	2.1	G	AO												
			Topsoil	2.2	G	AO												
			Fertilizer		G	AO												
			Organic Material	2.3.1														
			Soil Conditioner															
			Pesticide	2.5														
		02930A	SD-02 Shop Drawings															
			Finished Grade, Topsoil and	3.2.1	G	AO												
			Underground Utilities															
			SD-03 Product Data															
			Filter Fabric															
			Chemical Treatment Material															
			Equipment															
			Delivery	1.4.1														
			Plant Establishment Period	3.10														
			Maintenance Record															
			Application of Pesticide	3.8														
			SD-06 Test Reports															
			Soil Test	3.1.2.2														
			Percolation Test	3.1.2.1														
			SD-07 Certificates															
			Plant Material	2.1														
			Topsoil	2.2														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		02930A	Fertilizer															
			Organic Material	2.3.1														
			Soil Conditioner															
			Organic Mulch															
			Rock Mulch															
			Mycorrhizal Fungi Inoculum	2.10														
			Pesticide	2.12														
			Plant List															
			SD-04 Samples															
			Delivered Topsoil	1.4.1.3	G	AO												
			Soil Amendments		G	AO												
			Mulch	2.4	G	AO												
			Rock Mulch		G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Maintenance Instructions	3.10.5	G	AO												
		02935	SD-03 Product Data															
			Chemical Treatment Material	1.3.3														
			Maintenance Plant Drawing		G	AO												
			Work Plan and Schedule															
			Delivery Schedule	1.3.1														
			Maintenance Record	3.4.4														
			Application of Pesticide	3.3														
			SD-07 Certificates															
			Fertilizer	2.1.1														
			Mulch															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		02935	Pesticide	2.3														
		03100	SD-02 Shop Drawings															
			Formwork	3.1.1	G	AE												
			SD-03 Product Data															
			Design	1.3	G	AE												
			Form Materials	2.1	G	AE												
			Form Releasing Agents	2.1.5	G	AO												
		03150	SD-02 Shop Drawings															
			Waterstops	2.4														
			SD-03 Product Data															
			Preformed Expansion Joint Filler	2.2														
			Sealant	2.3														
			Waterstops	2.4														
			SD-04 Samples															
			Lubricant for Preformed	2.3.2														
			Compression Seals															
			Field-Molded Type	2.3.4														
			Non-metallic Materials	2.4.1														
			SD-07 Certificates															
			Preformed Expansion Joint Filler	2.2														
			Sealant	2.3														
			Waterstops	2.4														
		03200	SD-02 Shop Drawings															
			Reinforcement	3.1	G	AE												
			SD-03 Product Data															
			Welding	1.3	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		03200	SD-07 Certificates															
			Reinforcing Steel	2.3	G	AO												
		03300	SD-03 Product Data															
			Mixture Proportions	1.7	G	AE												
			Lightweight Aggregate Concrete	3.3	G	AE												
			SD-04 Samples															
			Surface Retarder	2.3.5	G	AO												
			SD-06 Test Reports															
			Testing and Inspection for	3.14	G	AO												
			Contractor Quality Control															
			SD-07 Certificates															
			Qualifications	1.4	G	AO												
		03410	SD-02 Shop Drawings															
			Drawings of precast members	1.7.1	G	AE												
			SD-03 Product Data															
			Product Data		G	AE												
			inserts	2.2.7.1	G	AE												
			Bearing pads	2.2.8	G	AE												
			SD-05 Design Data															
			design calculations	1.7.2	G	AE												
			Concrete mix design	1.7.3	G	AE												
			SD-06 Test Reports															
			Contractor-furnished mix design	2.1														
			SD-07 Certificates															
			Fabrication	2.3														
			SD-11 Closeout Submittals															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		03410	batch ticket	1.7.4														
		04200	SD-02 Shop Drawings															
			Masonry Work		G	AE												
			SD-03 Product Data															
			Insulation															
			Cold Weather Installation	3.1.2	G	AO												
			SD-05 Design Data															
			Pre-mixed Mortar	2.4.5	G	AE												
			Unit Strength Method		G	AE												
			SD-08 Manufacturer's Instructions															
			Masonry Cement	2.4.4														
		05090	SD-03 Product Data															
			Welding Procedure Qualifications	1.5	G	AO												
			Welder, Welding Operator, and	1.6	G	AO												
			Tacker Qualification															
			Inspector Qualification	1.7	G	AO												
			Previous Qualifications	1.5.1	G	AO												
			Prequalified Procedures	1.5.2	G	AO												
			SD-06 Test Reports															
			Quality Control	3.2	G	AO												
		05091	SD-03 Product Data															
			Ultrasonic Inspection	1.8.1	G	AE												
		05120	SD-02 Shop Drawings															
			Erection drawings		G	AE												
			Fabrication drawings	1.6.1	G	AE												
			SD-03 Product Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		05120	Shop primer	2.4														
			Load indicator washers	2.2.4														
			SD-06 Test Reports															
			Class B coating	2.4														
			Bolts, nuts, and washers	2.2														
			SD-07 Certificates															
			Steel	2.1														
			Bolts, nuts, and washers	2.2														
			Shop primer	2.4														
			Welding electrodes and rods	2.3.1														
			Nonshrink grout	2.3.2														
			Galvanizing	2.5														
			AISC Quality Certification	1.5														
			Welding procedures and	1.6.2.3	G	AO												
			qualifications															
		05300	SD-02 Shop Drawings															
			Deck Units	2.1	G	AE												
			Accessories	2.5	G	AE												
			Attachments	3.3	G	AE												
			Holes and Openings	3.4	G	AE												
			SD-03 Product Data															
			Deck Units	2.1	G	AE												
			Attachments	3.3	G	AE												
			SD-04 Samples															
			Deck Units	2.1	G	AO												
			Accessories	2.5	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		05300	SD-07 Certificates															
			Deck Units	2.1	G	AO												
			Attachments	3.3	G	AO												
		05400	SD-02 Shop Drawings															
			Framing Components (Exterior		G	AE												
			Studs)															
			SD-07 Certificates															
			Mill Certificates		G	AO												
			Welds	3.2.1	G	AO												
		05500	SD-02 Shop Drawings															
			Miscellaneous Metal Items	1.6	G	AE												
			SD-05 Design Data															
			Stairs and Railings		G	AE												
			Raised Seating Platform		G	AE												
		05520	SD-03 Product Data															
			Manufacturer's Data		G	AE												
			SD-02 Shop Drawings															
			Fabrication and Installation		G	AE												
			Drawings															
			SD-06 Test Reports															
			Handrails and Railing Systems		G	AE												
		05811	SD-02 Shop Drawings															
			Placement Drawings		G	AE												
			SD-03 Product Data															
			Product Data		G	AE												
			SD-04 Samples															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		05811	Samples for Initial Selection		G	AE												
			SD-06 Test Reports															
			Product Test Report		G	AE												
		06100	SD-07 Certificates															
			Grading and Marking	2.1.1														
			Insulation	2.3														
		06200	SD-02 Shop Drawings															
			Finish Carpentry		G	AE												
			SD-03 Product Data															
			Wood Items, Siding, and Trim	2.1														
			SD-04 Samples															
			Moldings	2.1.5	G	AE												
		06410	SD-02 Shop Drawings															
			Shop Drawings	1.7	G	AE												
			Installation	3.1	G	AE												
			SD-03 Product Data															
			Wood Materials	2.1														
			Wood Finishes	2.8														
			Finish Schedule	2.9.7.3														
			SD-04 Samples															
			Plastic Laminates	2.3	G	AE												
			Cabinet Hardware	2.5	G	AE												
			Wood		G	AO												
			SD-07 Certificates															
			Quality Assurance	1.4														
			Casework															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		06650	SD-02 Shop Drawings															
			Shop Drawings		G	AE												
			Installation	3.2	G	AE												
			SD-03 Product Data															
			Solid polymer material	2.1														
			Qualifications	1.6														
			Fabrications	2.3														
			SD-04 Samples															
			Material	2.1	G	AE												
			SD-06 Test Reports															
			Solid polymer material	2.1														
			SD-07 Certificates															
			Fabrications	2.3														
			Qualifications	1.6														
			SD-10 Operation and Maintenance															
			Data															
			Solid polymer material	2.1	G	AO												
			Celean-up		G	AO												
		07132	SD-03 Product Data															
			System Description		G	AE.												
			Reinforcing Fabric		G	AE												
			Protection Course		G	AE												
			Applications															
			SD-07 Certificates															
			Materials	1.4	G	AE												
		07170	SD-03 Product Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		07170	Product Date		G	AE												
			SD-07 Certificates															
			Submit Certificate(s)															
		07190	SD-03 Product Data															
			Water repellents	2.2														
			SD-06 Test Reports															
			Water absorption	2.3.1														
			Water absorption	2.3.2														
			Accelerated weathering	2.3.1														
			Accelerated weathering	2.3.2														
			Resistance to chloride ion penetration	2.3.1														
			Resistance to chloride ion penetration	2.3.2														
			Moisture vapor transmission	2.3.1														
			Moisture vapor transmission	2.3.2														
			Scaling resistance	2.3.1														
			Scaling resistance	2.3.2														
			Water Penetration and Leakage															
			SD-08 Manufacturer’s Instructions															
			Application	3.4														
			material safety data sheets	1.6.1														
		07220	SD-03 Product Data															
			Product Data		G	AE												
			Application of Insulation	3.5														
			Inspection	3.6														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		07220	SD-07 Certificates															
			Insulation	2.1	G	AO												
			Glass Roofing Felt															
		07413	SD-02 Shop Drawings															
			Siding		G	AE												
			SD-04 Samples															
			Texture and Color Samples		G	AE												
			Siding		G	AE												
			Gaskets and Insulating	2.7														
			Compounds															
			Sealant	2.6	G	AE												
			SD-07 Certificates															
			Siding															
			Installation	3.1														
			Accessories															
		07530	SD-02 Shop Drawings															
			Roofing System	1.3.2	G	AE												
			SD-03 Product Data															
			Installation	3.3														
			Protection of Finished Roofing	3.4														
			Inspection	3.5														
			SD-07 Certificates															
			Materials	1.3.4														
		07600	SD-02 Shop Drawings															
			Materials	2.1	G	AE												
		07721	SD-02 Shop Drawings															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		07721	Shop Drawings		G	AE												
			SD-05 Design Data															
			Structural Calculations															
			SD-08 Manufacturer's Instructions															
			Installation															
		07810	SD-03 Product Data															
			Fireproofing Material	3.3														
			SD-06 Test Reports															
			Fire Resistance Rating	1.7														
			SD-07 Certificates															
			Installer Qualifications	1.5														
			Surface Preparation Report	3.1														
		07840	SD-02 Shop Drawings															
			Firestopping Materials	2.1	G	AO												
			SD-07 Certificates															
			Firestopping Materials	2.1	G	AO												
			Installer Qualifications	1.5	G	AO												
			Inspection	3.3	G	AO												
		07900	SD-03 Product Data															
			Backing	2.1	G	AE												
			Bond-Breaker	2.2	G	AE												
			Sealant		G	AE												
			SD-07 Certificates															
			Sealant															
		08110	SD-02 Shop Drawings															
			Doors	2.1	G	AE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		08110	Frames	2.5	G	AE												
			Accessories	2.3	G	AE												
			Schedule of doors		G	AE												
			Schedule of frames		G	AE												
			SD-03 Product Data															
			Doors	2.1	G	AE												
			Frames	2.5	G	AE												
			Accessories	2.3	G	AE												
		08120	SD-02 Shop Drawings															
			Doors and frames	2.1	G	AE												
			SD-08 Manufacturer's Instructions															
			Doors and frames	2.1														
		08210	SD-02 Shop Drawings															
			Doors	2.1	G	AE												
			SD-03 Product Data															
			Doors	2.1	G	AE												
			Accessories	2.2														
			Water-resistant sealer															
			Warranty	1.4														
			SD-04 Samples															
			Doors	2.1	G	AO												
			Door finish colors	2.3.4.3	G	AO												
			SD-06 Test Reports															
			Split resistance	2.4														
			Cycle-slam	2.4														
			Hinge loading resistance	2.4														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		08330	SD-02 Shop Drawings															
			Approved Detail Drawings	3.1	G	AE												
			Installation	3.1	G	AE												
			SD-03 Product Data															
			Overhead Rolling Doors	2.1	G	AE												
			SD-04 Samples															
			Overhead Rolling Doors	2.1	G	AE												
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	1.6	G	AO												
			Manuals															
		08385	SD-02 Shop Drawings															
			Doors and Frames		G	AE												
			SD-07 Certificates															
			Sound Rated Doors															
		08420	SD-02 Shop Drawings															
			Aluminum Framing Systems		G	AE												
			SD-04 Samples															
			Finishes		G	AO												
			SD-06 Test Reports															
			Aluminum Framing Systems															
		08600	SD-02 Shop Drawings															
			Shop Drawings	3.2	G	AE												
			SD-03 Product Data															
			Skylights		G	AE												
			Warranty	1.6	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		08600	SD-06 Test Reports															
			Test Reports															
			SD-07 Certificates															
			Skylights		G	AE												
			Qualifications	1.4	G	AO												
		08710	SD-02 Shop Drawings															
			Hardware schedule	1.3	G	AE												
			Keying system	2.3.7	G	AO												
			SD-03 Product Data															
			Hardware items	2.3	G	AE												
			SD-08 Manufacturer's Instructions															
			Installation	3.1														
			SD-10 Operation and Maintenance															
			Data															
			Hardware Schedule	1.3	G	AO												
			SD-11 Closeout Submittals															
			Key bitting	1.4	G	AO												
		08810	SD-02 Shop Drawings															
			Installation	3.2	G	AE												
			SD-03 Product Data															
			Insulating Glass	2.2	G	AE												
			Glazing Accessories	2.6														
			SD-04 Samples															
			Insulating Glass	2.2	G	AE												
			SD-07 Certificates															
			Insulating Glass	2.2	G	AE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		09250	SD-03 Product Data															
			Cementitious backer units	2.1.4														
			Glass Mat Covered or Reinforced	2.1.2														
			Gypsum Sheathing															
			Glass Mat Covered or Reinforced															
			Gypsum Sheathing Sealant															
			Impact Resistant Gypsum Board	2.1.3														
			Accessories	2.1.12														
			SD-07 Certificates															
			Asbestos Free Materials	2.1	G	AO												
		09310	SD-03 Product Data															
			Tile	2.1														
			Setting-Bed	2.2														
			Mortar, Grout, and Adhesive	2.4														
			SD-04 Samples															
			Tile	2.1	G	AE												
			Marble Thresholds	2.5	G	AE												
			SD-07 Certificates															
			Tile	2.1														
			Mortar, Grout, and Adhesive	2.4														
		09445	SD-02 Shop Drawings															
			Approved Detail Drawings	1.3	G	AE												
			Strips	2.5	G	AE												
			Conrol Joint Strips		G	AE												
			SD-03 Product Data															
			Resin	2.2														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION: NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		09445	Mixing, Proportioning, and	3.2	G	AE												
			Installation															
			Cleaning and Sealing	3.3														
			SD-04 Samples															
			Resinous Terrazzo Flooring	1.3	G	AE												
			SD-07 Certificates															
			Conductive Resinous Terrazzo															
			Flooring															
		09510	SD-02 Shop Drawings															
			Approved Detail Drawings	1.3	G	AO												
			SD-03 Product Data															
			Acoustical Ceiling Systems															
			SD-04 Samples															
			Acoustical Units	2.1	G	AO												
			SD-07 Certificates															
			Acoustical Units	2.1														
		09650	SD-02 Shop Drawings															
			Flooring		G	AO												
			SD-03 Product Data															
			Flooring		G	AO												
			SD-04 Samples															
			Flooring		G	AO												
			Wall Base		G	AO												
			SD-06 Test Reports															
			Moisture Test															
			SD-08 Manufacturer's Instructions															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		09650	Flooring															
			SD-10 Operation and Maintenance															
			Data															
			Data Package 1		G	AO												
		09680	SD-02 Shop Drawings															
			Installation	3.4	G	AO												
			Molding	2.10	G	AO												
			SD-03 Product Data															
			Carpet															
			Surface Preparation	3.1														
			Installation	3.4														
			SD-04 Samples															
			Carpet		G	AO												
			Molding	2.10	G	AO												
			SD-06 Test Reports															
			Moisture and Alkalinity Tests	3.2														
			SD-07 Certificates															
			Carpet															
			SD-10 Operation and Maintenance															
			Data															
			Carpet		G	AO												
			Cleaning and Protection	3.5	G	AO												
		09720	SD-03 Product Data															
			Wallcoverings	2.1														
			Installation	3.3														
			Maintenance															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		09720	Clean-Up	3.4														
			SD-04 Samples															
			Wallcoverings	2.1	G	AO												
			SD-07 Certificates															
			Wallcoverings	2.1														
			SD-08 Manufacturer's Instructions															
			Wallcoverings	2.1														
			SD-10 Operation and Maintenance															
			Data															
			Wallcoverings	2.1	G	AO												
		09840	SD-02 Shop Drawings															
			Approved Detail Drawings	2.1	G	AE												
			SD-03 Product Data															
			Installation	3.2														
			Acoustical Wall Panels	2.1														
			SD-04 Samples															
			Acoustical Wall Panels	2.1	G	AE												
			SD-07 Certificates															
			Acoustical Wall Panels	2.1														
		09900	SD-02 Shop Drawings															
			Piping identification															
			stencil															
			SD-03 Product Data															
			Coating	2.1														
			Manufacturer's Technical Data	2.1														
			Sheets															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		09900	SD-04 Samples															
			Color	1.9	G	AE												
			Textured Wall Coating System	1.4.2	G	AE												
			Sample Textured Wall Coating	1.4.3	G	AO												
			System Mock-Up															
			SD-07 Certificates															
			Applicator's qualifications	1.3														
			Qualification Testing	1.4.1.2														
			SD-08 Manufacturer’s Instructions															
			Application instructions	3.3.1														
			Mixing	3.7.2														
			Manufacturer's Material Safety	1.7.2														
			Data Sheets															
			SD-10 Operation and Maintenance															
			Data															
			Coatings	2.1	G	AO												
		10100	SD-03 Product Data															
			Visual Display Boards															
			SD-08 Manufacturer’s Instructions															
			Projection Screens															
			SD-07 Certificates															
			Visual Display Boards															
		10153	SD-02 Shop Drawings															
			Toilet Partition System		G	AE												
			SD-03 Product Data															
			Toilet Partition System															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		10153	SD-04 Samples															
			Toilet Partition System		G	AE												
		10260	SD-02 Shop Drawings															
			Corner Guards	2.2	G	AO												
			SD-03 Product Data															
			Corner Guards	2.2	G	AO												
			SD-04 Samples															
			Finish	2.4	G	AO												
			SD-06 Test Reports															
			Corner Guards	2.2														
			SD-07 Certificates															
			Corner Guards	2.2														
		10270	SD-02 Shop Drawings															
			Raised Floor System		G	AE												
			SD-03 Product Data															
			Raised Floor System		G	AE												
			SD-04 Samples															
			Raised Floor System		G	AE												
			SD-06 Test Reports															
			Tests	2.4														
			Testing of Electrical Resistance	3.2														
			SD-07 Certificates															
			Raised Floor System															
			SD-05 Design Data															
			Calculations		G	AE												
		10440	SD-02 Shop Drawings															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		10440	Detail Drawings	3.1	G	AE												
			SD-03 Product Data															
			Installation	3.1														
			SD-04 Samples															
			Interior Signage	1.3	G	AE												
		10508	SD-02 Shop Drawings															
			Metal Lockers															
			SD-03 Product Data															
			Metal Lockers															
			SD-04 Samples															
			Metal Lockers		G	AE												
		10650	SD-02 Shop Drawings															
			Operable Partitions	2.2	G	AE												
			SD-03 Product Data															
			Operable Partitions	2.2														
			SD-04 Samples															
			Operable Partitions	2.2	G	AE												
			SD-07 Certificates															
			Materials	2.1														
			Operable Partitions	2.2														
			SD-10 Operation and Maintenance															
			Data															
			Operable Partitions	2.2	G	AO												
		10800	SD-03 Product Data															
			Finishes	2.1.2														
			Accessory Items	2.2														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		10800	SD-04 Samples															
			Finishes	2.1.2	G	AE												
			Accessory Items	2.2	G	AE												
			SD-07 Certificates															
			Accessory Items	2.2														
		11400	SD-02 Shop Drawings															
			Food Service Equipment	2.1.6	G	AE												
			Installation	3.1	G	AE												
			SD-03 Product Data															
			Food Service Equipment	2.1.6	G	AE												
			SD-06 Test Reports															
			Testing	3.3														
			SD-10 Operation and Maintenance															
			Data															
			Food Service Equipment	2.1.6	G	AO												
		12705	SD-02 Shop Drawings															
			Approved Detail Drawings		G	AE												
			Installation	3.1	G	AE												
			SD-03 Product Data															
			Installation Instructions	3.1														
			Warranty	1.8														
			Workstation Components															
			SD-04 Samples															
			Workstations		G	AO												
			SD-07 Certificates															
			Workstations															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		12705	SD-10 Operation and Maintenance															
			Data															
			Product Assembly Manual		G	AO												
			Product Maintenance Manuals		G	AO												
			Cleaning	3.2	G	AO												
			Electrical System	2.1.5	G	AO												
		13080	SD-02 Shop Drawings															
			Bracing	3.1	G	AE												
			Resilient Vibration Isolation	3.4	G	AE												
			Devices															
			Equipment Requirements	1.4	G	AE												
			SD-03 Product Data															
			Bracing	3.1	G	AE												
			Equipment Requirements	1.4	G	AE												
		13100	SD-02 Shop Drawings															
			Drawings		G	AO												
			SD-07 Certificates															
			Materials	2.1														
		13110	SD-02 Shop Drawings															
			Drawings	1.3.9	G	AE												
			Contractor's Modifications	1.3.2	G	AE												
			SD-03 Product Data															
			Equipment		G	AE												
			Spare Parts	3.9	G	AO												
			SD-06 Test Reports															
			Tests and Measurements	3.5	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		13110	Contractor's Modifications	1.3.2	G	AO												
			SD-07 Certificates															
			Cathodic Protection System		G	AO												
			Services of 'Corrosion Expert'	1.3.1	G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Cathodic Protection System		G	AO												
			Training Course	3.6	G	AO												
		13720	SD-02 Shop Drawings															
			Final System Drawings		G	AO												
			SD-03 Product Data															
			Test Procedures		G	AO												
			SD-05 Design Data															
			Electronic Security System		G	AE												
			Zoning Meeting		G	AO												
			SD-06 Test Reports															
			Test Reports		G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Training		G	AO												
			Operation and Maintenance		G	AO												
			Instructions															
		13851	SD-02 Shop Drawings															
			Fire Alarm Reporting System	1.4.1	G	AE												
			SD-03 Product Data															
			Storage Batteries	2.2	G	AE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		13851	Voltage Drop		G	AE												
			Special Tools and Spare Parts	2.7.4	G	AO												
			Technical Data and Computer	1.5	G	AO												
			Software															
			Training	3.5	G	AO												
			Testing	3.4	G	AO												
			SD-06 Test Reports															
			Testing	3.4	G	AO												
			SD-07 Certificates															
			Equipment	1.4.6														
			Qualifications	1.3.8	G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Technical Data and Computer	1.5	G	AO												
			Software															
		13930	SD-02 Shop Drawings															
			Shop Drawings	1.12	G	AE												
			As-Built Drawings	3.11														
			SD-03 Product Data															
			Fire Protection Related Submittals	3.1														
			Sway Bracing	3.4.1	G	AE												
			Materials and Equipment	2.3	G	AE												
			Hydraulic Calculations	1.7	G	AE												
			Spare Parts	1.11														
			Preliminary Tests	3.10	G	AO												
			Final Acceptance Test	3.11	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		13930	On-site Training	3.12	G	AO												
			Fire Protection Specialist	1.8	G	AE												
			Sprinkler System Installer	1.9	G	AE												
			SD-06 Test Reports															
			Preliminary Test Report	3.11	G	AE												
			Final Acceptance Test Report	3.11	G	AE												
			SD-07 Certificates															
			Inspection by Fire Protection	3.3	G	AE												
			Specialist															
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance		G	A0												
			Instructions															
		13935	SD-02 Shop Drawings															
			Shop Drawings	1.7	G	AE												
			As-Built Drawings	3.9	G	AO												
			SD-03 Product Data															
			Fire Protection Related Submittals	3.1	G	AO												
			Sway Bracing	3.4.1	G	AE												
			Materials and Equipment	2.3	G	AE												
			Hydraulic Calculations	1.7	G	AE												
			Spare Parts	1.11														
			Preliminary Tests	3.8	G	AO												
			Final Acceptance Test	3.9	G	AO												
			Fire Protection Specialist	1.8	G	AE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		13935	Sprinkler System Installer Qualifications	1.9	G	AE												
			Onsite Training	3.10	G	AO												
			SD-06 Test Reports															
			Preliminary Tests	3.8	G	AO												
			Final Acceptance Test	3.9	G	AO												
			SD-07 Certificates															
			Inspection by Fire Protection Specialist	3.3	G	AO												
			SD-10 Operation and Maintenance Data															
			Operating and Maintenance Instructions	3.10	G	AO												
		14240	SD-02 Shop Drawings															
			Detail Drawings	1.3	G	AE												
			SD-03 Product Data															
			Passenger Elevators	2.1	G	AE												
			Field Quality Control	3.2	G	AO												
			Logic Control	2.4.1	G	AE												
			SD-05 Design Data															
			Reaction Loads	1.3	G	AE												
			Heat Loads	1.3	G	AE												
			SD-06 Test Reports															
			Field Tests Reports	3.2.2	G	AO												
			SD-07 Certificates															
			Qualifications	1.4	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		14240	SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.3	G	AO												
			Manuals															
			Maintenance and Diagnostic	1.5.3	G	AO												
			Tools															
			Maintenance and Repair Action	1.7	G	AO												
			Plan															
			Operation and Maintenance	3.3	G	AO												
			Training															
		15070	SD-02 Shop Drawings															
			Coupling and Bracing	3.1	G	AE												
			Flexible Couplings or Joints	3.3	G	AE												
			Equipment Requirements	1.3	G	AE												
			Contractor Designed Bracing	1.2.4	G	AE												
			SD-03 Product Data															
			Coupling and Bracing	3.1	G	AE												
			Equipment Requirements	1.3	G	AE												
			Contractor Designed Bracing	1.2.4	G	AE												
			SD-07 Certificates															
			Flexible Ball Joints	2.2														
		15080	SD-02 Shop Drawings															
			Mica Plates	3.2.2.4	G	AO												
			SD-03 Product Data															
			General Materials	2.1														
			SD-04 Samples															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		15080	Thermal Insulation Materials		G	AO												
		15181	SD-02 Shop Drawings															
			Piping System	2.4	G	AE												
			SD-03 Product Data															
			Piping System	2.4	G	AE												
			Water Treatment Systems	2.12	G	AO												
			Spare Parts															
			Qualifications	1.3														
			Field Tests	3.3														
			Demonstrations	3.4	G	AO												
			Verification of Dimensions	1.6.1	G	AO												
			SD-06 Test Reports															
			Field Tests	3.3														
			Condenser Water Quality Tests															
			One-Year Inspection	3.5	G	AO												
			SD-07 Certificates															
			Service Organization	2.1														
			SD-10 Operation and Maintenance															
			Data															
			Operation Manuals		G	AO												
			Maintenance Manuals	3.4	G	AO												
			Water Treatment Systems	2.12	G	AO												
		15190	SD-02 Shop Drawings															
			Gas Piping System	3.2	G	AE												
			SD-03 Product Data															
			Qualifications		G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		15190	SD-06 Test Reports														
			Testing														
			Pressure Tests	3.15.1													
			Test With Gas	3.15.2													
		15400	SD-03 Product Data														
			Welding	1.5.1	G AO												
			Plumbing Fixture Schedule	3.9	G AO												
			Vibration-Absorbing Features		G AO												
			Plumbing System	3.8.1	G AO												
			SD-06 Test Reports														
			Tests, Flushing and Disinfection	3.8	G AO												
			Test of Backflow Prevention	3.8.1.1	G AO												
			Assemblies														
			SD-07 Certificates														
			Materials and Equipment	1.3													
			Bolts	2.1.1													
			SD-10 Operation and Maintenance														
			Data														
			Plumbing System	3.8.1	G AO												
		15565	SD-02 Shop Drawings														
			Heating System		G AE												
			Installation	3.1	G AE												
			SD-03 Product Data														
			Heating System		G AO												
			SD-06 Test Reports														
			Testing, Adjusting, and Balancing	3.2	G AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		15565	SD-10 Operation and Maintenance														
			Data														
			Instructions		G AO												
		15566	SD-02 Shop Drawings														
			Heating Equipment		G AE												
			Installation	3.1	G AE												
			SD-03 Product Data														
			Heating Equipment		G AO												
			Tests	3.4	G AO												
			System Diagrams		G AO												
			Similar Services														
			Field Training	3.5	G AO												
			SD-06 Test Reports														
			Tests	3.4	G AO												
			SD-10 Operation and Maintenance														
			Data														
			Heating Equipment		G AO												
		15569	SD-02 Shop Drawings														
			Installation	3.2.4.4	G AE												
			Installation	3.2.7	G AE												
			SD-03 Product Data														
			Materials and Equipment	1.3.1	G AO												
			Spare Parts	1.3.7													
			Water Treatment System	2.13	G AE												
			Boiler Water Treatment	2.13	G AE												
			Heating System Tests	3.7	G AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		15569	Fuel System Tests	3.9	G AO												
			Unit Heaters	2.6	G AO												
			Welding	1.3.6	G AO												
			Qualifications	3.7													
			Tests	3.3	G AO												
			SD-06 Test Reports														
			Heating System Tests	3.7	G AO												
			Fuel System Tests	3.9	G AO												
			Water Treatment Testing	3.7.1	G AO												
			SD-07 Certificates														
			Bolts	2.8.8.3													
			Continuous Emissions Monitoring	2.8.1													
			SD-10 Operation and Maintenance														
			Data														
			Operation and Maintenance	3.10	G AO												
			Instructions														
			Water Treatment System	2.13	G AO												
		15620	SD-02 Shop Drawings														
			Drawings		G AE												
			Installation	3.1	G AE												
			SD-03 Product Data														
			Refrigeration System	3.1.1	G AE												
			Spare Parts														
			Posted Instructions	3.5	G AO												
			Verification of Dimensions	1.5.1	G AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		15620	Manufacturer's Multi-Year	1.6														
			Compressor Warranty															
			Factory Tests		G	AO												
			System Performance Tests	3.1.1.2	G	AO												
			System Performance Tests	3.4	G	AO												
			Demonstrations	3.5	G	AO												
			SD-06 Test Reports															
			Factory Tests		G	AO												
			System Performance Tests	3.1.1.2	G	AO												
			System Performance Tests	3.4	G	AO												
			SD-07 Certificates															
			Refrigeration System	3.1.1														
			Service Organization	2.1	G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Operation Manuals		G	AO												
			Maintenance Manuals	3.5	G	AO												
		15702	SD-03 Product Data															
			Computer room air conditioning	2.1	G	AE												
			units															
			Space temperature control system		G	AE												
			drawings															
			SD-06 Test Reports															
			CRACU production schedule and		G	AE												
			factory test schedule															
			Manufacturer's factory test plans		G	AE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		15702	Factory test reports		G	AO												
			Field test schedule		G	AO												
			Manufacturer's field test plans		G	AO												
			Field test reports		G	AO												
			SD-07 Certificates															
			Certificate of Specification															
			Compliance															
			Credentials of the manufacturer's		G	AO												
			field test representative															
			SD-08 Manufacturer’s Instructions															
			Installation manual for each type	3.1.2	G	AO												
			of CRACU															
			SD-10 Operation and Maintenance															
			Data															
			Computer room air conditioning	2.1	G	AO												
			units															
		15895	SD-02 Shop Drawings															
			Drawings	3.1.9	G	AE												
			Installation	3.1	G	AE												
			SD-03 Product Data															
			Components and Equipment	2.1														
			Test Procedures	2.11.1														
			Welding Procedures	3.1.1.1														
			Diagrams	3.1	G	AO												
			Manufacturer's Exerience															
			Welded Joints	3.1.1.1	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		15895	Performance Tests	3.6	G	AO												
			Field Training	3.8	G	AO												
			SD-06 Test Reports															
			Performance Tests	3.6	G	AO												
			Testing, Adjusting, and Balancing	3.5	G	AO												
			SD-07 Certificates															
			Bolts	2.5.2.2														
			SD-10 Operation and Maintenance															
			Data															
			Operating and Maintenance	3.8	G	AO												
			Instructions															
		15951	SD-02 Shop Drawings															
			HVAC Control System	3.1.1	G	AE												
			SD-03 Product Data															
			Service Organizations		G	AO												
			Equipment Compliance Booklet	1.6	G	AO												
			Commissioning Procedures	3.4	G	AO												
			Performance Verification Test	1.6	G	AO												
			Procedures															
			Training	3.6	G	AO												
			SD-06 Test Reports															
			Commissioning Report	3.6.2	G	AO												
			Performance Verification Test	3.5.3	G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Operation Manual	1.5	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		15951	Maintenance and Repair Manual	1.6	G	AO												
		15990	SD-02 Shop Drawings															
			TAB Schematic Drawings and	3.3	G	AO												
			Report Forms															
			SD-03 Product Data															
			TAB Related HVAC Submittals	3.2														
			TAB Procedures	3.5.1	G	AO												
			Calibration	1.4														
			Systems Readiness Check	3.5.2	G	AO												
			TAB Execution	3.5.1	G	AO												
			TAB Verification	3.5.4	G	AO												
			SD-06 Test Reports															
			Design Review Report	3.1	G	AO												
			Systems Readiness Check	3.5.2	G	AO												
			TAB Report	3.5.3	G	AO												
			TAB Verification Report	3.5.4	G	AO												
			SD-07 Certificates															
			TAB Firm	1.5.1	G	AO												
			TAB Specialist	1.5.2	G	AO												
		15995	SD-03 Product Data															
			Commissioning Team	3.1	G	AO												
			Test Procedures		G	AO												
			Test Schedule		G	AO												
			SD-06 Test Reports															
			Test Reports		G	AO												
		16070	SD-02 Shop Drawings															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		16070	Lighting Fixtures in Buildings	3.2	G	AE												
			Equipment Requirements	1.4	G	AE												
			SD-03 Product Data															
			Lighting Fixtures in Buildings	3.2	G	AE												
			Equipment Requirements	1.4	G	AE												
			Contractor Designed Bracing	1.3.4	G	AE												
		16261	SD-02 Shop Drawings															
			Schematic diagrams	1.5.1	G	AO												
			Interconnecting diagrams	1.5.2	G	AO												
			Installation drawings	1.5.3	G	AO												
			SD-03 Product Data															
			Variable frequency drives	2.1	G	AO												
			Wires and cables	2.3	G	AO												
			Equipment schedule	1.5.4	G	AO												
			SD-06 Test Reports															
			VFD Test	3.2.1	G	AO												
			Performance Verification Tests	3.2.2	G	AO												
			Endurance Test	3.2.3	G	AO												
			SD-08 Manufacturer's Instructions															
			Installation instructions	1.5.5														
			SD-09 Manufacturer's Field															
			Reports															
			VFD Factory Test Plan	2.5.1	G	AO												
			Factory test results	1.5.6	G	AO												
			SD-10 Operation and Maintenance															
			Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		16261	Variable frequency drives	2.1	G	AO												
		16263	SD-02 Shop Drawings															
			Layout	3.6	G	AO												
			General Installation	3.1	G	AO												
			Acceptance	3.8	G	AO												
			SD-03 Product Data															
			Performance Criteria		G	AE												
			Sound Limitations	2.6	G	AE												
			Harmonic Requiremants		G	AE												
			Engine-Generator Parameter		G	AE												
			Schedule															
			Integral Main Fuel Storage Tank	2.3.4	G	AO												
			Power Factor	3.5.1.2	G	AE												
			Heat Rejected To		G	AE												
			Engine-Generator Space															
			Cooling System	2.5	G	AE												
			Time-Delay on Alarms	2.17.5	G	AE												
			Generator	2.13	G	AE												
			Manufacturer's Catalog	2.2	G	AE												
			Site Welding	1.4.6	G	AO												
			Spare Parts		G	AO												
			Onsite Training	3.7	G	AO												
			Battery Charger	2.11.3.2	G	AE												
			Vibration-Isolation		G	AE												
			Posted Data and Instructions	3.6	G	AO												
			Instructions	3.5.4.1	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		16263	Experience	1.4.13	G	AO												
			Field Engineer	1.4.14	G	AO												
			General Installation	3.1														
			SD-06 Test Reports															
			Factory Inspection and Tests	2.27	G	AO												
			Factory Tests	2.27.2	G	AO												
			Onsite Inspection and Tests	3.5	G	AO												
			SD-07 Certificates															
			Vibration Isolation															
			Prototype Test	2.27.2														
			Reliability and Durability															
			Emissions	2.10														
			Sound Limitations	2.6														
			Site Visit		G	AO												
			Flywheel Balance															
			Materials and Equipment	2.1														
			Inspections	3.5.3														
			Cooling System	2.5														
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.7	G	AO												
			Manuals															
			Maintenance Procedures	3.7	G	AO												
			Special Tools	2.12	G	AO												
			Filters	2.4.2	G	AO												
		16265	SD-02 Shop Drawings															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		16265	UPS System		G	AE												
			Installation		G	AE												
			Overall dimensions, front view,	3.1	G	AO												
			and sectional view															
			Typical installation and module	3.1	G	AO												
			arrangement															
			Ventilation and exhaust system	3.1	G	AO												
			SD-03 Product Data															
			Inter-rack and inter-tier cables															
			Control cable															
			Cable lugs															
			Field Training	3.5	G	AO												
			SD-06 Test Reports															
			Field Supervision, Startup and	3.2	G	AO												
			Testing															
		16375	SD-02 Shop Drawings															
			Electrical Distribution System	3.10.3	G	AO												
			As-Built Drawings		G	AO												
			SD-03 Product Data															
			Fault Current Analysis	2.17.4	G	AE												
			Protective Device	2.17	G	AE												
			Coordination Study	2.17.5	G	AE												
			Nameplates	2.2														
			Material and Equipment	2.1														
			General Installation Requirements	3.1														
			SD-06 Test Reports															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		16375	Factory Tests	2.16	G	AO												
			Field Testing	3.10	G	AO												
			Operating Tests	3.10.9	G	AO												
			Cable Installation	3.2.1.4	G	AO												
			SD-07 Certificates															
			Material and Equipment	2.1														
			Cable Joints	3.3														
			Cable Installer Qualifications		G	AO												
			SD-10 Operation and Maintenance															
			Data															
			Electrical Distribution System	3.10.3	G	AO												
		16410	SD-02 Shop Drawings															
			Switches		G	AO												
			Equipment	1.3.1	G	AO												
			Installation	3.1	G	AO												
			SD-03 Product Data															
			Material	1.3.1	G	AO												
			Equipment	1.3.1	G	AO												
			SD-06 Test Reports															
			Testing	2.4	G	AO												
			SD-07 Certificates															
			Equipment	1.3.1														
			Material	1.3.1														
			Switching Equipment															
			SD-10 Operation and Maintenance															
			Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

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		16410	Switching Equipment		G	AO												
			Instructions	3.2	G	AO												
		16415	SD-02 Shop Drawings															
			Interior Electrical Equipment		G	AO												
			SD-03 Product Data															
			Fault Current and Protective		G	AE												
			Device Coordination Study															
			Manufacturer's Catalog		G	AO												
			Material, Equipment, and Fixture		G	AO												
			Lists															
			Installation Procedures															
			As-Built Drawings	1.2.6	G	AO												
			Onsite Tests	3.22.2	G	AO												
			SD-06 Test Reports															
			Factory Test Reports															
			Field Test Plan		G	AO												
			Field Test Reports	3.20	G	AO												
			SD-07 Certificates															
			Materials and Equipment	1.4														
		16475	SD-03 Product Data															
			Fault Current Analysis	2.10	G	AE												
			Protective Device Coordination	2.10	G	AE												
			Study															
			Equipment	2.1	G	AE												
			System Coordinator	1.4.1	G	AO												
			Protective Relays	3.3.5	G	AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY						REMARKS
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		16475	Installation	3.2	G A0												
			SD-06 Test Reports														
			Field Testing	3.3	G AO												
			SD-07 Certificates														
			Devices and Equipment	1.6													
		16710	SD-02 Shop Drawings														
			Premises Distribution System	1.7	G AO												
			Installation	3.1	G AO												
			Protective Distribution System		G AO												
			SD-03 Product Data														
			Record Keeping and	1.8	G AO												
			Documentation														
			Spare Parts														
			Manufacturer's Recommendations	3.1.2													
			Test Plan	3.6	G AO												
			Qualifications	1.5	G AO												
			SD-06 Test Reports														
			Test Reports	3.6	G AO												
			SD-07 Certificates														
			Premises Distribution System	1.7													
			Materials and Equipment	2.1													
			Installers	1.5.1	G AO												
		16711	SD-02 Shop Drawings														
			Telephone System		G AO												
			Installation	3.1	G AO												
			Record Drawings		G AO												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
NORTHCOM HQ ADDITION, PETERSON AFB, CO

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		16711	SD-03 Product Data															
			Spare Parts															
			Equipment	1.5.2														
			Installation	3.1	G	AO												
			Acceptance Tests	3.5	G	AO												
			Cutover and Records	3.4	G	AO												
			SD-06 Test Reports															
			Acceptance Tests	3.5	G	AO												
			SD-07 Certificates															
			Telephone System															
			Qualifications	1.4	G	AO												

DOCUMENT TABLE OF CONTENTS

DIVISION 00 - DOCUMENTS

SECTION 00800

SPECIAL CONTRACT REQUIREMENTS

5/00, Rev 5/03

-- End of Document Table of Contents --

SECTION 00800

SPECIAL CONTRACT REQUIREMENTS
5/00, Rev 5/03

PART 1 GENERAL

Attachments:
General Wage Decisions CO030012 (Heavy) and CO030006 (Building)
Contractor Distribution List (For Contract Drawings)

1.1 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall commence work under this contract within ten (10) calendar days after the date of receipt by him of Notice to Proceed, prosecute said work diligently, and complete the entire work ready for use not later than 540 calendar days after receipt of Notice to Proceed. The time stated for completion shall include final cleanup of the premises. (FAR 52.211-10)

1.1.1 Start Work

Evidence that the Contractor has started procurement of materials, preparation and submission of shop drawings, preparation of subcontracts, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. Therefore, work need not be commenced at the construction site within ten (10) calendar days.

1.2 LIQUIDATED DAMAGES-CONSTRUCTION (SEPT 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of $1580.00 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause. (FAR 52.211-12)

1.3 EXCEPTION TO COMPLETION TIME AND LIQUIDATED DAMAGES

In case the Contracting Officer determines that seeding, sodding, and/or planting and/or the specified maintenance thereof is not feasible during the construction period, such work will be excepted from the completion time and liquidated damages. This work shall be accomplished during the first seeding, sodding, and/or planting period and the specified maintenance period following the completion date.

1.4 PHASING REQUIREMENTS

See Section 01020: PROJECT PHASING

1.5 MISSION DELAYS

Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of mission delays and resultant impact to normally scheduled work. Actual mission delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The contractor shall expect 15 working days of mission delays. This will cover occurrences due to heightened force protection and/or prohibiting contractor access to the site. If the number of actual mission delay days exceeds the number of days anticipated, the contracting officer will convert any qualifying delays to calendar days, giving full consideration for equivalent work days as listed in the initial contract completion schedule.[Am_0004] The 15 days of Mission Delay time are additive and not included in the 540 calendar day completion time listed in Para. 1.1, above, and SF1442, Page 00010-1 block 11.

1.6 GOVERNMENT CONTRACTORS AND JOINT OCCUPANCY

In order to achieve full operational facility readiness, the Government shall undertake and award separate contracts for additional work at, in, or near the project site and facility construction required by contract. The contractor shall fully cooperate with the other Government contractors and with the Government employees, and shall carefully adapt scheduling and performance of the work under this contract to accommodate the joint occupancy work of other Government Contractors, heeding any direction that may be provided by the Contracting Officer. The contractor may not commit or permit any act that will interfere with the performance of work by any other contractor or Government employees. The phasing plan will address a 120 day joint occupancy period for Tele-Communications room located in the HQ Bed-down Addition. (Rooms B118, 1125, 2139) Government contractors shall also be provided joint occupancy usage along pathways for connectivity from the telecommunications rooms. The phasing plan will address a 120 day joint occupancy period for the Contingency Operations Center (B080 & B080a) and equipment rooms (B086, B073, B070a, B070b) and corridor B079. The phasing plan will also address a 90 day joint occupancy period for the food service vendor in Court 1112, and 1127a, and a 90 day joint occupancy for electrical room B110. The actual date of completion and availability of spaces requiring joint occupancy will be clearly designated in the phasing plan. Changes to the dates upon acceptance of the contractor phasing plan will be coordinated with the contracting officer.

Prior to the start of the government joint occupancy period of the indicated spaces, all electrical power functionality must be complete, grounding shall be complete, HVAC fully operational, including CRAC units, all communication conduit/cutouts, cable trays shall be installed, including protective distribution systems, and raised flooring shall be completely installed. These items of work defined herein for the areas listed above shall be completed in 360 calendar days after Notice to Proceed.

1.7 CONTRACT DRAWINGS AND SPECIFICATIONS

1.7.1 SETS FURNISHED

The contractor shall be responsible for making copies of specifications including amendments. The bid drawings as amended shall be utilized in the performance of the work until CD-ROM containing the contract drawings (i.e., bid drawings that have been posted with all amendment changes) are

mailed to the Contractor. See paragraph below for contract drawing reproduction and distribution requirements. The work shall conform to the contract drawings, set out in the drawing index, all of which form a part of these specifications. The work shall also conform to the standard details bound or referenced herein.

1.7.2 DRAWING REPRODUCTION AND DISTRIBUTION

The Contractor shall reproduce multiple legible hard copy sets (half-size English unless directed otherwise) of contract drawings from Government provided CD-ROM containing read-only cal file drawings. Within 14 calendar days after receipt of CD-ROM containing read-only cal drawing files, the Contractor shall provide legible hard copy drawing sets to the addressees contained in the Contract Document Distribution List for Project in Appendix B to this specification. The Government will process no progress payments prior to receipt of the legible contract drawings. After receipt and distribution of the legible hard copy drawing sets, the Government will provide the Contractor with a CD-ROM containing editable CAD file drawings (format defined in Section 01040 AS-BUILT DRAWINGS). The Contractor shall prepare as-built drawings as defined in Section 01040 AS-BUILT DRAWINGS.

1.7.3 NOTIFICATION OF DISCREPANCIES

The Contractor shall check all CD-ROM drawing files furnished him immediately upon their receipt and shall promptly notify the Contracting Officer of any discrepancies. Dimensions marked on drawings shall be followed in lieu of scale measurements. Enlarged plans and details shall govern where the same work is shown at smaller scales. All scales shown are based on a standard drawing size of 28" x 40". If any other size drawings are furnished or plotted the contractor shall adjust the scales accordingly. The Contractor shall also advise his sub-contractors of the above. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

1.7.4 OMISSIONS

Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

1.7.5 Inventory of Contract Drawings

The Contractor shall implement and account for all construction drawings circulated on this project. A list of all participants receiving drawings shall be given to the Contracting Officer. The inventory list shall be updated and changed as necessary to fully account for users of the drawings. Upon completion of the project, all contract drawings distributed shall be turned over to the Government.

1.8 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be

submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Utility Interuption and Outage Plan; G-AO.

Meter(s) Type(s); G-AO
Watering Times; G-AO
Metering Reading Data; G-AO
Landscape Establishment Plan; G-AO

Contractor shall develop a landscape establishment plan. Plan shall include landscape establishment inclusive of schedule and watering required for root sod or seed. Plan shall be submitted with plans showing the location, type of meter, and meter reading schedule.

SD-02 Shop Drawings

Equipment Room Drawings; G-AO.

1.9 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractors' information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

a. The indications of physical conditions on the drawings and in the specifications are the result of site investigations by surveys and borings. The data shown graphically and by symbol for each respective boring represents the actual geologic features observed and logged at the location given on the drawings. While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local minor variations characteristic of the subsurface materials of this region could occur.

b. Weather conditions shall have been investigated by the Contractor to satisfy himself as to the hazards likely to arise therefrom. Complete weather records and reports may be obtained from the local U.S. Weather Bureau.

c. Transportation facilities shall have been investigated by the Contractor to satisfy himself as to the existence of access highways and railroad facilities. (FAR 52.236-4)

1.10 PAYMENT

1.10.1 PROMPT PAYMENT ACT

Pay requests authorized in CONTRACT CLAUSES clause: "Payments Under Fixed-Price Construction Contracts", will be paid pursuant to the clause, "Prompt Payment for Construction Contracts". Pay requests will be submitted on ENG Form 93 and 93a, "Payment Estimate-Contract Performance" and "Continuation". All information and substantiation required by the identified contract clauses will be submitted with the ENG Form 93, and the required certification will be included on the last page of the ENG Form 93a, signed by an authorized contractor official and dated when signed. The designated billing office is the Office of the Project Manager.

1.10.2 PAYMENTS FOR MODIFICATIONS

Payments may be made for cost bearing change orders within the scope of the contract only to the extent funds are authorized in the order on a two-part modification. Contractor pricing proposed must be submitted at the earliest possible time after the change order is issued, or at a specific time as directed by the Contracting Officer. At the discretion of the Contracting Officer, any and all payments may be withheld on the modification until the Contractor has submitted a qualifying price proposal, in as much detail as required by the Contracting Officer, and the final price has been agreed.

1.10.3 PAYMENT FOR MATERIALS DELIVERED OFFSITE (MAR 1995)

a. Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (2) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.

b. Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. Payment for materials delivered off-site includes petroleum products. (List additional items for which payments will be made for off-site delivery.) (EFAR 52.232-5000)

1.11 AVAILABILITY OF UTILITY SERVICES

All reasonably required amounts of domestic water and electricity will be made available to the Contractor by the Government from existing system outlets and supplies. The Contractor shall, at his own expense, make all temporary connections and install distribution lines. Temporary overhead electrical lines are not permitted within the construction boundary, or near the existing facility. The Contractor shall furnish to the Contracting Officer a complete system layout drawing showing type of materials to be used and method of installation for all temporary electrical systems. Meters shall be installed by the Contractor to determine the amount water and electricity used by him, and such utilities will be paid for by or charged to the Contractor. All temporary lines shall be maintained by the Contractor in a workmanlike manner satisfactory to the Contracting Officer and shall be removed by the Contractor in like manner prior to final acceptance of the construction. Normal quantities of electricity and water used to make final tests of completely installed systems will be furnished by the Government. Contractor shall install temporary water meters for the duration of the project for all areas where water is used for this contract. The contractor shall keep track of all water usage used in the construction project process during all declared water restrictions. The data gathered will be compiled weekly and submitted at the weekly coordination meeting. The government will use this data to insure proper water management is maintained.

1.11.1 Water Resrictions

[Am_0004] The state of Colorado is under drought conditions and will be conserving water for years to rebuild the water reservoirs. The City of Colorado Springs provides water to Peterson AFB and is thus under its water regulations and jurisdiction. The City of Colorado Springs maintains a web site that declares which condition of water conservation the jurisdiction is setting. The website is www.csu.org. Violation of these conservation requirements is punishable by fines issued by the City of Colorado Springs to Peterson AFB. If Peterson AFB is fined because of actions of the contractor, the base fine will be passed onto the contractor via the Contracting Officer. These requirements are broken down into pre-establishment, establishment and post establishment of landscaping and general water use. Failure of the contractor to follow the restrictions of this specification and the City of Colorado Springs Utilities CAN result in fines and penalties as listed on the website AND contained herein. The Contractor shall follow the requirements contained in this specification.

Establishment is defined as the period that begins when the plant materials are placed in their final setting and lasting to the time specified by this specification.

Stage II Water Restrictions: During Stage II water restrictions the contractor shall develop irrigation schedules for submission to the contracting officer and the Chairman of the Water Conservation Council (WCC) for approval. The WCC is located at 21CES/CEOE, 719-556-4158. If not within the guidelines for water reduction levels below, contractor shall resubmit until approved.

Level A - Contractor shall achieve a 10% reduction on developed baseline through the contractor, contracting officer and the chairman of the WCC. Level A allows irrigation of 3 times per week. The baseline is defined below.

Level B - Contractor shall achieve a 26% reduction on developed baseline through the contractor, contracting officer and the chairman of the WCC. Level B allows irrigation of 2 times per week.

Level C - Contractor shall achieve a 43% reduction on developed baseline through the contractor, contracting officer and the chairman of the WCC. Level C allows irrigation of 1 time per week.

Level D - Contractor shall achieve a 50% reduction on developed baseline through the contractor, contracting officer and the chairman of the WCC. Level D allows irrigation of 2 times per month.

Level E - Contractor shall achieve a 58% reduction on developed baseline through the contractor, contracting officer and the chairman of the WCC. Level E allows irrigation of 1 time per month.

Stage III Water Restrictions. Restrict outdoor watering to irrigation necessary to sustain large trees and special cases as approved by Base Commander. Contractor shall comply with this directive as coordinated through the contracting officer via the WCC. Anticipate turf grass loss. The Base Commander will direct further restrictions within grounds irrigation plan.

The baseline shall be calculated and submitted by the contractor for approval to the Contracting Officer and the WCC. The baseline shall be calculated for each year of the contract and broken down into Summer and Winter usages.

1.11.2 Liability

The contractor shall not be relieved of liability for the establishment and maintenance of landscaping within the project while water restrictions are Stage II or above (not in stage III).

The contractor shall bid on Stage II-B.

The contractor shall not be liable for plant materials dying during conditions of Stage II-C through Stage III except for negligence.

1.11.3 Irrigation methods

The following limitations imposed on various watering methods for pre-establishment and post-establishment.

a. Hand watering - no restrictions for bucket or truck watering. Hoses shall have positive shutoff and not be left unattended. Drip irrigation system and micro sprays will be considered on a case-by-case basis by the WCC. The contractor shall submit equipment, design and watering schedule for hand watering and approval obtained from the Contracting Officer and the WCC before watering begins.

b. Irrigation systems temporary or permanent. Pop Up sprinkler zones shall not run for more than 20 minutes. Impact sprinkler zones shall not run for more than 45 minutes.

1.11.4 Watering Times

Watering times shall be between the hours of midnight to 9:00 am and 6:00 pm and midnight on the designated day within the contractors approved schedule based on the watering restrictions declared herein. Contractor shall produce a plan with watering schedules complete with drawings showing zones and water flows for each zone, which shall be subject to inspection.

This plan includes pre-establishment, establishment, and post-establishment. The plan is submitted for approval by the WCC via the Contracting Officer.

All other base irrigation will be shifted to night schedules as soon as the freezing threat is gone at the beginning of the season. Daytime watering will be coordinated with the chairman of the WCC and the contracting officer based on freeze threat or special cases, examples: such as equipment failure and the landscape missed its designated watering.

In addition to the requirement above zones adjacent to sidewalks and areas where pedestrians can get sprayed shall not be watered after 6:00 AM. If the number of zones cannot fit into this watering time window the contractor must demonstrate this case and request permission for an alternative schedule to the WCC via the contracting officer. However, this is not permission to under design the size of the irrigation system. If design is required the system

shall be designed to operate under the time windows here specified.

1.11.5 Landscape Establishment

This includes the establishment of all landscape to include sod (turf), shrubs, bushes, tree, perennials, annuals, etc.

Stage I & II has no restrictions on the amount of water used during establishment.

The contractor shall not water outside the times listed above except for special permission from the WCC and on a case by case basis.

1.11.5.1 Landscape Establishment period.

The establishment period runs for 24 days for turf grass (sod or seed) and 11 days for other landscape material.

1.11.5.2 Landscape Establishment Period Restrictions

Stage II level A & B: no landscape establishment is permitted from July 15th through August 15th.

Stage II Levels C-E: no landscape establishment is allowed from May 1st through September 30th.

Stage III: No landscape establishment is authorized in a Stage III declared drought.

If the Stage II levels C through E or Stage III higher levels of restriction are in force; a credit, a reduction of work, or some other equitable adjustment shall be negotiated through the contracting officer based on uncontrollable circumstances.

1.11.5.3 Maintenance of Irrigation Systems

The contractor shall maintain the irrigation system such that water running onto paved areas or into storm sewers shall be minimized.

1.11.5.4 Meeting Requirements

In addition to a preparatory meeting required elsewhere in this contract the contractor shall schedule a Landscape Meeting with the Contracting Officer, WCC, and Base Project Manager at least four weeks prior to the start of landscaping activities and prior to the purchase of landscaping material. This meeting shall fully discuss and resolve any issues related to the installation, establishment, and maintenance of the landscaping. The meeting shall discuss the execution of the landscaping and any necessary adjustments for the conditions of drought and coordination.

1.12 INFRASTRUCTURE AND UTILITY SERVICE INTERRUPTIONS

An overall infrastructure and utility outage plan shall be submitted for approval with tentative scheduled dates for interruptions. The plan shall lump required work for interruptions together so as to minimize impacts to fire lanes and operations of buildings 1, 2 and 3 and Peterson AFB. The

contractor will identify all interruptions in the initial plan and indicate required interruptions/outages with proposed dates. Approval of the initial plan is required. Upon each specific outage outlined in the initial plan, submit a detailed notification, for final approval and acceptance 30 days prior to performing the actual interruption/outage. Infrastructure and utilities include, but are not limited to, parking lots, roads, gates, security dirt/gravel roads, security systems, sidewalks, entrances, doors, water systems, irrigation, irrigation controls, lighting external and internal, water, fire detection, electrical power and UPS. The Contractor shall submit written notification not less than 30 calendar days in advance of each interruption of each utility and communication service to or within existing buildings and facilities being used by others. No single outage will exceed 4 hours unless approved in writing. The time and duration of all outages will be coordinated and approved with the Using Agency by the Contracting Officer.

1.13 DIGGING PERMITS AND ROAD CLOSINGS

The Contractor shall be responsible for securing digging permits. Digging permits typically take 14 working calendar days for review, processing and approval. The Contractor will be provided a blank AF Form 103 and shall be responsible for signatures and coordination with communications, fire department, plumbing shop, electrical shop, grounds shop, environmental, safety, security police, base operations and any affected public utility. Work on or near roadways shall be flagged in accordance with the safety requirements in Safety and Health Requirements Manual EM 385-1-1, which forms a part of these specifications. Roads shall not be closed at any time for utility work. All utilities crossing beneath any paved road will be installed via boring and jacking.

Information on intended road closings shall be submitted 30 days in advance to the Contracting Officer, for approval, prior to and execution of road closing. All road closings will published in the base newspaper, once approved.

1.13.1 Fire Lanes

Fire Lanes shall be open for emergency vehicle traffic at all times. The Fire Lane locations are as follows:

a. Building 1: The loading dock road located on the south of the facility and running east and then north to the Fire Department Connection.

b. Building 2: The road running from the Entry Control Point to the loading dock to the Fire Department Connection.

c. Building 3: The road running from the Entry Control Point, turning south, and to the south of the facility.

These fire lanes shall remain open at all times. The government reserves the right to move vehicles or supplies out of these fire lanes at the contractor's expense.

1.14 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

a. This clause specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: (Fixed-Price Construction)." In order

for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

Jan	Feb	Mar	Apr	May	Jun
(08)	(05)	(04)	(04)	(06)	(04)

Jul	Aug	Sep	Oct	Nov	Dec
(07)	(05)	(03)	(02)	(03)	(06)

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b. above, the contracting officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)". (ER 415-1-15)

1.15 INSURANCE REQUIRED

In accordance with CONTRACT CLAUSES clause: "Insurance Work on a Government Installation," the Contractor shall procure the following minimum insurance:

Type	Amount
Workmen's Compensation and Employer's Liability Insurance	$100,000
General Liability Insurance	$500,000 per occurrence
Automobile Liability Insurance	
Bodily injury	$200,000 per person and $500,000 per occurrence
Property damage	$ 20,000 per occurrence

(Coverages per FAR 28.307-2)

1.16 SECURITY AND ACCESS REQUIREMENTS

1.16.1 Security Requirements

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display such identification as may be approved and directed by the Contracting Officer. All prescribed identification shall immediately be delivered to the Contracting Officer, for cancellation upon release of any employees. When the contract involves work in restricted security areas, only employees who are U.S. citizens will be permitted to enter. Proof of U.S. citizenship is required prior to entry. When required by the Contracting Officer, the Contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project. (Based on FAR 52.204-2)

The contract requires work in areas that are an active Secure Compartmentalized Information Facilities (SCIF). The contractor shall provide SCI-cleared security escorts during any construction related activity within all SCIF areas. Escorts can be off-duty military personnel with SCI clearance.

1.16.2 Peterson AFB Access Requirements

a. Each Contractor and Contractor employee to work on the job at PAFB must obtain a vehicle pass to enter the base. The pass will be obtained the first day of work at the Base, or not later than the next working day. To obtain a vehicle pass, the vehicle operator must have in his/her possession, a current valid driver's license, current vehicle registration, and current proof of insurance. Badging is issued at the Visitor's Center and is located outside the North Gate. Procedures for obtaining badging and base passes will be identified at the Pre-Construction Meeting. Expired/unregistered vehicles will not be allowed on the base. Employees who are terminated from employment will surrender any and all identification media and vehicle passes to their immediate supervisor, who will in turn surrender the same to the Pass and ID Office. The supervisor will immediately escort the terminated employee off base and notify the Contracting Officer of the termination. The Contractor shall provide the Contracting Officer a copy of a completed "Contractor Employee Verification List" Attachment, which is to include the names of all subcontractors and suppliers, names of personnel, date-of-birth, and social security numbers of all employees requiring sponsor access to the Base. The list shall be revised in its entirety and a new copy provided to the Contracting Officer as persons/companies are added and/or deleted. Notification of access for personnel shall be provided 48 hrs in advance to the Contracting Officer.

b. Fuel Trucks: Fuel truck deliveries are covered by a separate Entry Access List. Each driver shall have a contractor badge and be escorted onto base. Another contractor already cleared and on the Base Entry Access List can escort the Fuel truck driver. The Entry Access List for Fuel Trucks (EALFT) is kept with the 21SW/AT office, phone 556-6739. The fuel truck driver must be on the list and the Base EAL before entering the West Gate or the Contractor Construction Gate (See Section 01025). The following information is required: Full Name, Company Name w/phone number, Drivers License number with State of Issue. The drivers' social security number must be provided if requested. Fuel truck deliveries to the Construction Contractor's Gate has additional requirements in the Contractor

Construction Gate specification.

c. All driver's on PAFB will have in their possession a valid driver's license, valid vehicle registration, and proof of vehicle insurance while operating any vehicle. If vehicle is registered to someone other than the operator, the operator must provide a notarized letter from the registered owner, authorizing the operator permission to operate the vehicle. All vehicles entering or leaving PAFB are subject to search.

d. Contract Superintendent must notify the Contracting Officer prior to any work performed on non-scheduled hours/days (evenings, weekends, holidays). Any personnel working on non-scheduled hours/days must check in with Base Police prior to and at the completion of the work.

e. All equipment and materials are the responsibility of the Contractor. Make sure that all equipment and materials are properly secured at the end of the work day. Any work area found by Base Police to be unsecured will be checked for intruders and the responsible Contract Superintendent will be called in to secure the areas/equipment.

f. If any roadway is to be blocked for any reason, the Contractor shall notify the Contracting Officer of the blockage, prior to the blockage, and must insure that proper signs are installed to divert traffic around the affected area. As much lead time notification as possible is appreciated for proper coordination, and notification of other activities on base.

g. Contractors, Subcontractors and all personnel who report for work, and do not know the location of the job site, will be held at the gate to await escort service from the Construction Superintendent.

h. Base speed limits are strictly enforced with the use of radar equipment. The base speed limit is 30 MPH, unless otherwise posted. The speed limit through the gates is 20 MPH. Motorcycle operator/riders must wear protective headgear (helmets) while riding on base. Mandatory seatbelt laws are in effect on base. Seatbelts must be fastened prior to entering the base. All motor vehicle traffic must enter the base via the main gate, .

i. No privately owned weapons or contraband (drugs, etc.) are permitted on any military installation, at any time. Violators will be prosecuted. Cameras are also considered to be contraband on this installation.

j. The base security police can at any time enter the construction site and sweep the area with bomb sniffing dogs. They can search any container, vehicle, or contractor personnel on the installation, or within the construction boundaries. The security police can also detain and question any person(s) deemed a potential threat by the Air Force. The contractor shall not place storage containers of any type, or tool storage bins/lockers within 80 feet of the existing facility exterior walls, or foundation walls.

k. Peterson AFB is considered to be a closed facility. No unauthorized tours or visitors will be allowed on the installation.

l. The Base Security Police emergency number can be obtained at the Pre-Construction Meeting. This number provides emergency police, fire, and ambulance service, 24 hours a day, 7 days/week.

1.16.3 Peterson AFB Gate Operation and Entry Requirements

All traffic coming and leaving PAFB is subject to search and shall comply with requirements of the Threat Condition Codes. All persons entering PAFB must have a military ID or a Contractor Badge and vehicles must be registered.

1.16.3.1 North Gate

Contractors are not allowed to use the North Gate for entrance to PAFB. No exceptions will be made.

1.16.3.2 West Gate

The West Gate (Main Gate) to PAFB is always open except when directed by the base commander under conditions of National Security. All commercial vehicles shall use the right lane of the West Gate. A commercial vehicle is defined as any vehicle that has signage on it, is carrying materials such as in a pickup truck, a moving van, a panel truck, a supply truck, and any vehicle that the 21SFS shall designate a commercial vehicle. All commercial vehicles will be searched. The gate experiences up to 30 minute delays during morning congestion between the hours of 0700 to 0800. After 0800, delays of approximately 5 minutes are typical. The contractor is asked to keep large truck deliveries between the following hours: 0500-0600, 0800-1200 and 1300-1800. This will reduce the congestion at the gate for everyone.

1.16.3.3 East Gate

The East Gate is for morning hours use with personally owned vehicles only **(No Commercial Vehicles are allowed at this gate)**. This gate is open 0500-0900, Monday through Friday only. The contractor's employees driving personally owned vehicles can use the East Gate. The gate is usually the least congested on PAFB. The government reserves the right to close and prohibit access at this gate when it deems necessary.

1.16.4 Contractor Employees Requiring Access to Automated Information Systems (AIS)

All Contractor (and subcontractor) employees (U.S. citizens and Non- U.S. citizens) working under this contract (to include grants, cooperative agreements and task orders) who require access to Automated Information Systems (AIS), (stand alone computers, network computers/systems, e-mail) shall, at a minimum, be designated into an ADP-III position (non-sensitive) in accordance with DoD 5220-22-R, Industrial Security Regulation (http://www.deskbook.osd.mil/htmlfiles/DBY_dod-7-Careers.asp).

The investigative requirements for an ADP-III position are a favorable National Agency Check (NAC), SF-85P, Public Trust Position.
SF-85P is available at: http://www.gsa.gov/Portal/home.jsp

Under "Key Information", click on "Federal Forms",
Click on "U.S. Government Forms (GSA, Standard and Optional)"
Click on "Standard (SF) Forms"
Click on "SF 85P Questionnaire for Public Trust Positions"
SF 85P is available in either Screen-Fillable FormNet Version or Adobe Acrobat version.

Proof of a favorable NAC shall be submitted to USACE, Omaha District Security Officer, ATTN: CENWO-SL, 106 S. 15th St, Omaha, NE 68102-1618,

within three (3) working days after award of any contract or task order, and shall be submitted prior to the individual being permitted access to an AIS.

a. Contractors who have a commercial or government entity (CAGE) Code and Facility Security Clearance should submit forms through their Facility Security Office, who shall forward results of the NAC to the Omaha District Security Officer (address above).

b. For those contractors who do not have a CAGE Code or Facility Security Clearance, the SF 85-P and 2 copies of the FD-258 (Fingerprint Cards) shall be completed and submitted to the Omaha District Security Officer (address above.) These must be mailed or hand-delivered, as original signatures are required. Fingerprint cards are available upon request and may be taken to any local law enforcement center for completion. For those in the Omaha, Nebraska area, fingerprint cards may be completed by contacting the Omaha District Human Resources Office, (402) 221-4072.

In accordance with Engineering Regulation, ER 380-1-18 (http://www.usace.army.mil/inet/usace-docs/eng-regs/er.htm), Section 4, foreign nationals who work on Corps of Engineers' contracts or task orders shall be approved by the HQUSACE Foreign Disclosure Officer or higher before beginning work on the contract/task order. This regulation includes subcontractor employees. (NOTE: exceptions to the above requirement include foreign nationals who perform janitorial and/or ground maintenance services.) The Contractor shall submit to the Omaha District Contracting Office, ATTN: (CENWO-CT) the names of all foreign nationals proposed for performance under this contract/task order, along with documentation to verify that he/she was legally admitted into the United States and has authority to work and/or go to school in the US. Such documentation may include a US passport, Certificate of US citizenship (INS Form N-560 or N-561), Certificate of Naturalization (INS Form N-550 or N-570), foreign passport with I-551 stamp or attached INS Form I-94 indicating employment authorization, Alien Registration Receipt Card with photograph (INS Form I-151 or I-551), Temporary Resident Card (INS Form I-688), Employment Authorization Card (INS Form I-688A), Reentry Permit (INS Form I-327), Refugee Travel Document (INS Form I-571), Employment Authorization Document issued by the INS which contains a photograph (INS Form I-688B). INS forms are available at http://www.immigration.gov/graphics/formsfee/index.htm.

Compliance with this provision is mandatory (only if AIS access is required). Offeror should check the appropriate box below and return with offer or quote to Contracting Office.(End of Provision)(PIL 2003-06, 19 Feb 03)

1.17 CONTRACTOR QUALITY CONTROL (CQC)

See Section 01451A Contractor Quality Control.

1.18 NONDOMESTIC CONSTRUCTION MATERIALS

The List of nondomestic construction materials or their components included in the list set forth in paragraph 25.104 of the Federal Acquisition Regulation does not apply to the requirements of the contract clause entitled "Buy American Act Construction Materials".

1.19 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)

Any contract awarded as a result of this solicitation will be a DO rated order certified for national defense use under the Defense Priorities and Allocations System (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation. (FAR 52.211-14)

1.20 DAILY WORK SCHEDULES AND WEEKLY COORDINATION MEETINGS

In order to closely coordinate work under this contract, the Contractor shall prepare a written agenda/meeting minutes and attend a weekly coordination meeting with the Contracting Officer and Using Service at which time the Contractor shall submit for coordination and approval, his proposed daily work schedule for the next two week period. The Contractor shall provide a copy of modifications (MODs), Serial Letters, Requests for Information (RFIs)and any other innformation that is needed in the minutes of the meeting. Required temporary utility services, time and duration of interruptions, and protection of adjoining areas shall be included with the Contractor's proposed 2-week work schedule. At this meeting, the Contractor shall also submit his schedule of proposed dates and times of all preparatory inspections to be performed during the next 2 weeks. The items of work listed on the proposed 2-week schedule are to be keyed to the NAS by activity number and description for each activity anticipated to be performed during the next 2-week period. Coordination action by the Contracting Officer relative to these schedules will be accomplished during these weekly meetings. Daily reports shall be completed and given to the Contracting Officer or Representative within 24 hours of work

1.21 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)

a. This statement shall become operative only for negotiated contracts where cost or pricing data is requested, and for modifications to sealed bid or negotiated contracts where cost or pricing data is requested. This clause does not apply to terminations. See 52.249-5000, Basis for settlement of proposals and FAR Part 49.

b. Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a Contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the Contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series of equipment from the Contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense

Schedule," Region V. Copies of each regional schedule may be obtained through the following internet site: http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep.htm. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be developed using the formula provided in the schedule. For forward pricing, the Schedule in effect at the time of negotiations shall apply. For retrospective pricing, the Schedule in effect at the time the work was performed shall apply.

c. Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and

sale-leaseback arrangements will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

d. When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet. (EFARS 52.231-5000)

1.22 AS-BUILT DRAWINGS

See SECTION 01040 - AS-BUILT DRAWINGS

1.23 EQUIPMENT ROOM DRAWINGS

Prior to construction, the Contractor shall prepare and submit room plans for all mechanical, electrical, and communication rooms or similar areas. The plans shall be consolidated for all trades, shall be to scale, and shall show all pertinent structural features. In addition, other items such as doors, windows, and cabinets required for installation and which will affect the available space, will be shown. All mechanical and electrical equipment and accessories shall be shown to scale in plan and elevation and/or section in their installed positions. All duct work and piping shall be shown.

1.24 CONSTRUCTION PROJECT SIGNAGE

On commencement of work the Contractor shall furnish and erect temporary signs at the following locations:

-Construction Contractor Access Road at HWY 94
-Trailer Compound
-B2 at location as directed by the Contrcating Officer.

The Contractor shall maintain all signs in good condition through the project construction period. Upon completion of the project, the Contractor shall remove all signs from the premises. All project signs shall conform to the requirements shown on the drawings. All signs shall bare emblems for the USAF Space Command, NORAD, NORTHERN COMMAND and a decal of the Corps of Engineers "Engineer Castle". The emblems will be furnished the Contractor upon request.

1.25 CONTRACTOR FURNISHED EQUIPMENT DATA

See Section 01200 Warranty of Construction for Contractor Furnished Equipment Data to be submitted as part of the Warranty Equipment Booklet.

1.26 ACCOMMODATIONS FOR GOVERNMENT INSPECTORS

The Contractor shall furnish a temporary office facility approximately 10 feet x 20 feet with a minimum of 200 square feet of floor space. It shall be located where directed and shall be reserved for Government personnel only. Drinking water facilities, adequate lighting, local commercial telephone service, air-conditioning, heating equipment, and a partition enclosed chemical toilet shall be furnished and maintained by the Contractor. The office shall be furnished with one legal size filing cabinet with four

drawers, one drafting table with stool, one plan rack, one desk, and three chairs. Used furniture, in good condition, will be acceptable. Entrance doors shall be equipped with a substantial lock. The Contractor shall provide janitor service(twice a week on Tuesday and Friday), fuel for the heating facilities, electricity, telephone, high-speed data cable service and water, all at no cost to the Government, except the Contractor will not be liable for Government long-distance calls. The entire facility, including furniture, will remain the property of the Contractor and shall be removed from the site after completion of the work.

1.26.1 Construction Trailer Utilities

1.26.1.1 Electrical and Water Service Entrance

See Section 01025: CONTRACTOR CONSTUCTION GATE for utility easement information. An overhead electrical line and water line from off base shall be reused by the contractor. The City of Colorado Springs Utilities owns the power and the Cherokee water district owns the water. The contractor shall make arrangements with utility owners for these utilities and pay all costs associated. This activity is excluded from the specified use of reasonable amounts of utilitiy usage listed herein. The Government has no involvement with the servive entrance utilities. The existing power line is an 800 amp overhead service. After coordination with the City of Colorado Springs and adjacent easement owner, the contractor shall demolish this electrical service back to Highway 94 in its entirety. The water line is a 0.75-inch line and is listed as nonpotable. The contractor is responsible for any and all work to restore or improve the water service. The contractor shall coordinate with the City of Colorado Springs and the adjacent easement owner to demolish this water service back to Highway 94 at the tap.

1.26.1.2 Sewage

The site has one sewage tank installed with a capacity of 250 to 300 gallons. The contractor shall be responsible for the removal and disposal of waste using this sewage tank as well as connecting it to the construction trailers and performing any and all necessary work to make the sewage system operational. Upon project completion, the contractor shall remove all temporary construction sewage system connections.

1.27 PERFORMANCE OF WORK BY CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty (20) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government. (FAR 52.236-1)

1.28 PARTNERING

a. The Government intends to encourage the formation of a cohesive partnership with the Contractor. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objective is effective contract performance in achieving completion within budget, on schedule and in accordance with plans and specifications. This partnership between the Contractor and the Government will be voluntary and its implementation will not be part of the contract requirements nor will it result in a change to contract price or

terms.

b. It is anticipated that immediately after the preconstruction conference, the appropriate Contractor's key personnel and Government key personnel will attend a 1 or 2 day informal team building workshop at a location as directed by the contracting officer or his representatives. Follow-up workshops of 1 or 2 days duration may be held periodically throughout the duration of the contract as agreed to by the Contractor and the Government. Costs of the facilitator and facilities for the workshops will be shared equally by the participants.

1.29 PROFIT

a. Weighted guidelines method of determining profit shall be used on any equitable adjustment change order or modification issued under this contract. The profit factors shall be as follows:

Factor	Rate	Weight	Value
Degree of Risk	20	See Item	
Relative difficulty of work	15	b. below	
Size of Job	15		
Period of performance	15		
Contractor's investment	5		
Assistance by Government	5		
Subcontracting	25		
	100		

b. Based on the circumstances of each procurement action, each of the above factors shall be weighted from .03 to .12 as indicated below. The value shall be obtained by multiplying the rate by the weight. The value column when totalled indicates the fair and reasonable profit percentage under the circumstances of the particular procurement.

(1) Degree of Risk. Where the work involves no risk or the degree of risk is very small, the weighting should be .03; as the degree of risk increases, the weighting should be increased up to a maximum of .12. Lump sum items will have, generally, a higher weighted value than the unit price items for which quantities are provided. Other things to consider: the portion of the work to be done by subcontractors, nature of work, where work is to be performed, reasonableness of negotiated costs, amount of labor included in costs, and whether the negotiation is before or after performance of work.

(2) Relative Difficulty of Work. If the work is most difficult and complex, the weighting should be .12 and should be proportionately reduced to .03 on the simplest of jobs. This factor is tied in to some extent with the degree of risk. Some things to consider: the nature of the work, by whom it is to be done, where, and what is the time schedule.

(3) Size of Job. All work not in excess of $100,000 shall be weighted at .12. Work estimated between $100,000 and $5,000,000 shall be proportionately weighted from .12 to .05.

(4) Periods of Performance. Jobs in excess of 24 months are to be weighted at .12. Jobs of lesser duration are to be proportionately weighted to a minimum of .03 for jobs not to exceed 30 days. No weight where additional time not required.

(5) Contractor's Investment. To be weighted from .03 to .12 on the basis of below average, average, and above average. Things to consider: amount of subcontracting, mobilization payment item, Government furnished property, equipment and facilities, and expediting assistance.

(6) Assistance by Government. To be weighted from .12 to .03 on the basis of average to above average. Things to consider: use of Government-owned property, equipment and facilities, and expediting assistance.

(7) Subcontracting. To be weighted inversely proportional to the amount of subcontracting. Where 80 percent or more of the work is to be subcontracted, the weighting is to be .03 and such weighting proportionately increased to .12 where all the work is performed by the Contractor's own forces.

1.30 LABOR CONDITIONS APPLICABLE TO TEMPORARY FACILITIES

It is the position of the Department of Defense that the Davis-Bacon Act, 40 U.S.C. 276a is applicable to temporary facilities such as batch plants, sandpits, rock quarries, and similar operations, located off the immediate site of the construction but set up exclusively to furnish required materials for a construction project on the site of the work. Clause "Payrolls and Basic Records" of the CONTRACT CLAUSES is applicable to such operations.

1.31 DRAWING SCALES

All scales shown are based on a standard drawing size of 28" x 40". If any other size drawings are furnished or plotted, the contractor shall adjust the scales accordingly. The Contractor shall also advise his sub-contractors of the above.

1.32 WAGE RATE APPLICATION

1.32.1 Building Schedule

Applicable to all work required within 5 feet outside the building lines.

1.32.2 Heavy Schedule

Applicable to all work required beyond 5 feet outside the building.

1.33 (FAR 52.222-23) NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999))

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in

percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for Minority Participation for Each Trade	Goals for Female Participation for Each Trade
10.9	6.9

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs Office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the -

(1) Name, address, and telephone number of the subcontractor;

(2) Employer identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Colorado Springs SMSA-1720, which El Paso County is a part of.

1.34 FEDERAL HOLIDAYS

The following Federal legal holidays are observed by this installation:

New Year's Day	1 January

Martin Luther King's Birthday	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	4 July
Labor Day	First Monday in September
Columbus Day	Second Monday in October
Veterans Day	11 November
Thanksgiving Day	Fourth Thursday in November
Christmas Day	25 December

If a wage determination applies the number of holidays specified on it, it has priority over this clause.

1.35 BASE HOURS

Base operation hours are 6:00 a.m. to 6:00 p.m. daily (Monday through Friday), excluding federal holidays. Access to the base during other times must be requested in writing from the Contracting Officer and will be granted only for extenuating circumstances.

PART 2 NOT USED

PART 3 NOT USED

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01020

CONSTRUCTION PHASING

-- End of Section Table of Contents --

SECTION 01020

CONSTRUCTION PHASING

PART 1 GENERAL

The Contractor shall submit a Construction Phasing Plan, for approval, which shall include the phasing and sequencing of construction work operations listed below. The Construction Phasing Plan shall detail all utility outages and building access/operational interruptions and indicate the sequence for utility re-routes and building demolition/remodeling activities, so as to minimize service outages and interruptions to existing facilities. Utility requirements for construction shall be complete with all systems tested and fully operational prior to the start of demolition on site retaining walls, remodeling of existing building interior and excavating for new foundations. The following phasing/schedule items shall be addressed and included in the plan and clearly demonstrate an understanding of current operations and access requirements of the base and user agencies. Requirements given below shall be complied with and addressed in the Construction Phasing Plan, identify any other elements of construction operations, which can [Am_0004]~~effect~~ affect day-to-day operations of government personnel. The goal of the plan is to have uninterrupted access and operations for government employees with reduced utility interruptions within the Hartinger Building (Bldg 1), NORAD-NORTHCOM Building (Bldg 2) and ARSPACE Building (Bldg 3).

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Phasing Plan; G-AO

Provide a fully comprehensive Construction Phasing Plan, which demonstrates [Am_0004]~~understanding~~ compliance of all Phasing Elements within this specification.

1.2 CONSTRUCTION PHASING ELEMENTS

1.2.1 Phase 1 - Mobilization

(1) The Contractor's Haul Route/Access will be through the West Gate by installation roadways to the staging and project site areas shown on the drawings. All workers shall be required to show a contractor's badge prior to entering Peterson AFB. The badge shall be worn and clearly displayed at all times while on Peterson AFB.

(2) A chain link construction perimeter fence 1.82 meters high shall be installed around areas identified as "Work Limits" on the drawings and a separate fence shall be installed around the staging area. The

staging area shall include a designated area for field offices, construction parking and equipment/material staging. The "Work Limits" zone will include the area for the new NORTHCOM Addition as well as the NORAD Battle Management Operations Center. Construction area fences shall be moved as needed during the course of the work so as to limit the restricted area to the minimum needed during trenching and construction for site utilities. Building exit doors shall have direct access through the construction zone fencing to allow occupants proper egress from the building.

(3) The Government and Contractor Field Offices shall be located as designated on the drawings. All contractor private vehicles shall be parked within designated areas at the contractor-staging site. No construction vehicles, materials, equipment or construction staff personal vehicles shall be parked on roadways or in parking lots around buildings 1, 2, and 3. The Contractor shall limit the number of construction vehicles within the "Work Limits" to the minimum necessary for efficient operations. The contracting officer or contracting officers representative(s) can direct the removal of any vehicle(s) within the construction boundaries. Contractor shall remove vehicle(s) immediately, if directed to do so. All construction vehicles within the construction work limit boundaries shall display the company logo on the exterior of the vehicle.

(4) The area for construction parking and material staging shall be established/surveyed by the contractor as needed for the contractor setup area around the trailers. If additional area is needed, provide a justification request to the Government. An area for stockpiling excess soil from building foundation excavation will be established south of the Staging area as shown on the drawings. Provide an Intermediate Haul Route consisting of non-paved roadways to and from Staging Area, Work Sites and soil stockpile area. Haul route can be comprised of any existing non-paved temporary roads and the blading of new temporary roads as required. The contractor shall maintain these existing and new temporary roads during the period of construction. All temporary roads created by the contractor shall be returned to their original pre-contract condition at the completion of construction. The contractor shall provide traffic control around the project site, as needed, whenever construction traffic will be actively intersecting roadways with other traffic.

(5) A temporary gravel, recycled asphalt, and/or recycled concrete base shall be provided at the construction parking area. [Am_0004]Temporary ~~concrete~~ sidewalks shall be provided for access to the Government and Contractor Field Offices. Temporary ~~concrete~~ sidewalks ~~of standard cast-in-place construction or moveable pavers of approximate 2'x2' dimension~~ shall be installed around the Work Areas for access around the buildings, connecting existing sidewalks and/or stoops where existing walkways are interrupted. See drawings for materials and thicknesses required on temporary sidewalks. These temporary walks shall be moved as needed during fence relocations, as noted above, to provide the least interruption to pedestrian traffic. Temporary sidewalks shall be in place prior to fence relocation. Contractor shall submit pedestrian traffic plans when walkways are interrupted. Alternate pedestrian routes shall not exceed 50 meters more than the original path due to closure of walkways. The contractor shall submit an electronic drawing in Autocadd of the temporary sidewalks, fence locations, and travel paths as part of the phasing plan. All damage to existing vegetation and irrigation system from the placement of

temporary sidewalks shall be replaced to match original pre-contract conditions at no additional cost to the government. Temporary walks for building access and egress shall comply with ADA and UFAS accessibility standards. In addition all walks used for life safety egress shall comply with the requirements of NFPA 101.

1.2.2 Phase 2 - Utility Construction

Once Notice to Proceed is provided by the Government, the Contractor shall commence construction of utility re-route work within the construction perimeter fence area, demolition, earthwork, site concrete work, paving, and site utilities. The construction work will include the following items:

(1) Start-up: Survey, demo of paving and sidewalks, and minor over lot grading shall be performed as necessary to establish grades in the new utility alignment locations. All paving and sidewalk removals for utility trenches shall be saw cut to provide straight construction joints for replacement of new pavement and sidewalks. Relocate existing trees and plants affected by the new work as indicated on the drawings or as directed by the Contracting Officer. Remove grass in line with trenching work prior to initiating the trenching work. Replace all grass areas damaged by utility construction with sod matching existing grass type. Prior to any excavation work, all irrigation lines and control wiring shall be located and potholed by the contractor ensuring continuous operation of the irrigations system. The contractor, at no additional cost to the government, shall immediately repair any damage to the existing irrigation system and control wiring. The contractor is responsible for all final repairs to the irrigation system to ensure correct operation of the entire irrigation system impacted by construction activities. All control wires shall be marked on both sides of the cut prior to trenching work. Vegetation that dies as a result of lack of watering due to contractor damage to the irrigation system shall be replaced to match existing by the contractor at no additional cost to the government. All existing vegetation that dies or is damaged as a result of contractor activities or piling of soils, shall be replaced with sod to match existing.

(2) Storm Drainage: Install a new storm drainage system as shown on the drawings. Work includes rerouting of the interior roof drainage system as shown on the drawings. Contractor shall plan and implement the construction so as to maintain an operational storm drainage system at all times during the construction. Construction activities as a result of this work, which disturb the NORAD basement area, shall require traffic control in the loading dock area. The loading dock area shall remain accessible at all times with at least one lane open for emergency Fire Department usage, connection locations, access for emergency equipment, access for routine material and equipment deliveries, and parking for senior officers. In the unforeseen event that the loading dock may have to be temporarily obstructed, work shall be performed on a scheduled weekend with advanced notice.

(3) Gas: Hot tap the gas system at each end and complete a new loop. Install new service lines and cut over to existing service line. Coordinate with building operations staff, as required in Section 00800. After the replacement service is installed and tested, cut off and seal the old main. Remove the portion to be demolished during the foundation excavation phase. The service cut-over will result in a maximum possible one-day outage of gas for the NORAD/NORTHCOM building. This work [Am_0004]~~is preferred~~shall not ~~to~~ occur during the heating

season and shall be accomplished on a scheduled weekend.

(4) Water: Hot tap the water system at each end and complete the new relocated loops. Install new service lines and tie into current building service entrances. After the new loop and services have been tested and disinfected, cut off the old main and old services, while making connections to new services. This will result in a maximum possible one-day outage of water for the NORAD building. Remove the portion of water line to be demolished as shown on the drawings during the foundation excavation phase. This water line connection work shall be completed during a scheduled single two-day weekend.

(5) Communications: The contractor shall install new manholes and conduit around the south and east side of the existing building as shown on the drawings. The existing ducts along the northeast side of the building shall remain until all re-routes are complete. The Government will provide contractor with a sequence of bundles of fiber to remove and re-terminate. Each bundle in it's entirety shall be removed, rerouted and re-terminated separately. As each bundle is re-terminated, it shall be inspected, tested and accepted. Once all bundles are accepted, the northern entrance conduit can be capped off and removed. Because of redundant circuits, there will be no communications interruptions/outages allowed when performing this work. The contractor shall complete all re-routing of communication fiber, testing and acceptance within one month from start of [Am_0004] communications work.

(6) Electrical: Set new manhole and conduit from existing ST-54 and new ST-54B. De-energize ST-54 (rename ST-54A)and remove conductors. Reconnect primary voltage side. Intercept existing conduit from existing transformers and connect into new manhole. Pull new feeders to existing transformers from ST-54. Inspect and test. Re-energize all services. The building backup generators shall operate and carry the necessary loads during the period that the system is de-energized. This work shall be completed during a scheduled single two-day weekend.

(7) Site Electrical: Open and close points along the primary electrical distribution as shown on drawings, and primary loop around the entire Space Command complex bordered by Vandenberg, Peterson and Paine Streets, so as to isolate adjacent building feeds. De-energize adjacent manholes feeding adjacent buildings. Pull new conductors and terminate. Inspect and test. Re-energize feeds to affected buildings. Move to next two adjacent building manholes and repeat process. This will result in several short-term power outages to the Hartinger Building, NORAD Building and ARSPACE Building. This work shall be completed during a series of two-day weekends to be scheduled and coordinated with the Government.

(8) Irrigation: Re-route irrigation main and make connections at all laterals that remain in service as indicated on the drawings. Remove the portion of irrigation lines as indicated on the drawings to be demolished during the foundation excavation phase. This work will result in an outage not to exceed one week and can be done during any season as long as supplemental irrigation is provided during the base irrigation season, which normally lasts from April to the end of October. Supplemental irrigation shall be provided by the contractor at no additional cost to the government. Vegetation that dies as a result of lack of watering shall be replaced to match existing by the contractor at no additional cost to the government. The contractor

shall be responsible for recovering stressed vegetation, and providing supplemental treatments to recover the plantings within the watering limits specified.

(9) Sewer: Install new sewer lines as indicated on the drawings. Sewer lines installation work shall not result in any service outage. Significant obstruction to pedestrians and disturbance to landscaping is expected due to the depth and resulting width of the trenches. Re-route walkways and construction fencing as needed to provide adequate working space and security for pedestrians. This work does not need to be completed prior to beginning foundation demolition or foundation excavation work.

(10) Dock Utilities: After the new grading and retaining walls have been completed around the Mechanical Yard, install buried chilled water piping to the NORAD/NCOC addition from the new chiller location as shown on the drawings. Also install the new storm inlet and drain needed for the expanded Mechanical Yard as shown on the drawings. This work shall not result in any service outage. Traffic control is expected in the Loading Dock area as a result of doing this work. The 480v circuit route across the loading dock will be done concurrently with the chilled water lines, and the civil work in this area while keeping the loading dock operational, as well as maintenance of the fire lane to the fire department connectionAccess to the loading dock will be maintained at all times (See Section 00800).

1.2.3 PHASE 3a - Wall Demolition and Building Excavation

Upon completion of the scope outlined within Phase 2 - Utility Construction [Am_0004] and except as noted above, demolition of site retaining walls and footing excavation will start. Phase 3a work will include the following:

(1) Approximately 155-feet of existing site retaining wall as shown on the drawings north of the Mechanical Yard will be sawcut and removed, including footings. The outer wall of the northeast area way as shown on the drawings will be saw cut and removed. See description of Interior Remodel Work for penetrations into existing building.

(2) Concurrently, the building footing excavation for the NORTHCOM addition can begin. Establish a foundation-dewatering system and maintain until all footings are backfilled.

(3) Construct the foundation stabilization, install footings and perimeter foundation drain, and begin wall construction.

(4) The same operations can be conducted concurrently or subsequently for the NORAD/NCOC foundation. No site retaining walls shall be removed at the NORAD/NCOC facility.

(5) The existing facility fresh air intake is considered a secure area for force protection. It is imperative that the fence around the fresh air intakes be secured after hours, and that the intakes be inspected several times a day, and at the end, and beginning of each workday to ensure no packages have been left, on or near the intake.

1.2.4 PHASE 3b - Interior Remodel Work

(1) On Second Level area of Room 2111, maintain exit path from west end of Room 2111 until completion of new exit into new corridor. Limit time

of obstruction of both new and existing exit to Corridor 2103 to weekends and after-business-hours. Perform interior remodel work in the existing NORAD Building only after completion, acceptance, and turn-over of the NORTHCOM building addition. The contractor will not be permitted to execute interior remodel work in the existing facility unitl 60 days after the NORTHCOM addition is complete and Air Force personnel have moved out of remodel areas into the new addition.

(2) On Entry Level, maintain egress from Stair 1099 at all times throughout construction. Provide temporary protection to egress path during construction.

(3) On Entry Level, prior to excavation for the addition, provide signage at north exterior door out of Room 1067, which states [Am_0004] "DANGER, AREA OBSTRUCTED BY HAZARDOUS CONSTRUCTION, NO EXITING IS PERMITTED" ~~that the exit is obstructed by hazardous construction.~~ Provide professionally produced signage that clearly redirects pedestrians to Corridor 1006 to south. Text of signage shall be minimum 1-inch height, black Helvetica font on white background. Perform interior remodel work only after completion of building addition.

(4) In Basement, prior to excavation for the addition provide signage at southwest exterior door out of Room B045 to Stair B065, which states that the exit is obstructed by hazardous construction. Provide temporary, professionally produced signage that clearly redirects pedestrians to Corridor B022 and Stair B028 to north. Text of signage shall be minimum 1-inch height, black Helvetica font on white background.

(5) The contractor will not be permitted to execute interior remodel work in Rooms, B040, B045, B046 & B048 and associated access corridors until 60 days after the Contingency Operations Center is accepted by the government and the Existing Operational functions are shut down and transferred to the COC. Personnel shall enter and egress the COC addition using exterior entrances to these areas until the contractor completes the new ingress/egress corridors in the existing building. The contractor shall provide a card reader and security camera (both suitable for exterior use) at Stair B089, exterior door B079D. The card reader shall be as specified in Section 13720 ELECTRONIC SECURITY SYSTEM. The camera shall be as specified in Section 16751 CLOSED CIRCUIT TELEVISION SYSTEMS. The card reader and security camera at this location are not shown on the security system drawings. Once the contractor is given access to any existing area requiring alterations the contractor shall utilize sound and dust barriers to minimize disruption to building occupants. When working within a SCIF, the contractor will provide SCI-cleared security escorts during any construction in active SCIF areas. (Can be off-duty military personnel with SCI access). The Contractor shall provide the contracting officer a 2-week notice before cutting doorways from existing building into new COC, or for any disruption/penetration of a SCIF. The contractor may be required to construct temporary SCIF barriers as required to maintain integrity of mission operational functions and maintain SCIF level of construction features. In addition to temporary SCIF barriers, Intrusion detection devices shall also be installed to maintain SCIF integrity.

(6) "The contractor shall provide a card reader and security camera (both suitable for exterior use) at Court 1112, exterior door 1112B. The card reader shall be as specified in Section 13720 ELECTRONIC

SECURITY SYSTEM. The camera shall be as specified in Section 16751 CLOSED CIRCUIT TELEVISION SYSTEMS. The card reader and security camera at this location are not shown on the security system drawings.

1.2.5 PHASE 4 - SITE/PARKING, SIDEWALK AND PAVEMENT CONSTRUCTION

(1) Limit access in Parking Lot No. 6 to the eastern driveway, and begin construction of the new Access Control Point and relocated west driveway into Lot No. 6. After backfilling the new additions, replace or construct new walkways and landscaping. Parking lot No. 6 security improvements shall be completed prior to acceptance of the new addition.

(2) Upon completion of all site and building exterior construction, the construction fence shall be removed. Fence location shall permit the existing parking lots and access sidewalks to be utilized as much as possible during the construction period to permit unimpeded pedestrian flow from the parking areas and between all facilities within the Command complex. Coordinate site work with the concurrent AT/FP Landscape work.

1.2.5.1 Fire and Emergency Access

The existing asphalt pavement at the north entry drive and parking lot drive adjacent to the east side of the NORAD Building will initially remain as originally depicted for fire/emergency access. Any construction in those areas must retain at least one lane for traffic at all times. Adequate fire/emergency access for site construction will be relocated as mandated by the sequence of construction but will be maintained at all times. Fire truck access to fire department connections on all sides (specifically the north side) of the NORAD Building, Hartinger building and ARSPACE building will be maintained at all times. Prior to erection or relocation of the construction fence, proper access will be reviewed with the Government. Any changes necessary to assure proper/safe access will be accomplished.

1.2.5.2 AT/FP Scheduling Requirements

During landscaping and AT/FP construction, schedule work to allow pedestrian access to all buildings from all parking lots. Provide pedestrian detours that do not add more than 165 feet of walking distance from any direction. Provide temporary, professionally produced, weather resistant signage that clearly redirects pedestrians around hazardous areas to temporary detours. Text of signage shall be minimum 1-inch height, black Helvetica font on white background.

The phasing plan shall address early construction start and completion within 6 months of Notice to Proceed the perimeter AT/FP vehicle barrier system, bollards, new traffic barrier gate at existing Hartinger Building, loading dock access road, fire lane, access road to parking lot 3, and associated south side gate. The AT/FP barrier shall be constructed to the maximum extent practical without inhibiting the contractor's ability to move materials, vehicles within areas under construction, or areas requiring utility/site-work. At a minimum the phasing plan will address construction of the vehicle barrier perimeter along the entire west, east and entire southern site perimeter and north between parking lot No. 7, and No. 7a., and along the south edge of Lot No. 6. The contractor has flexibility with the northern AT/FP perimeter to construct only vehicle barrier lengths as determined acceptable as to not impede execution of

other contract elements. The contractor is not required for this phasing element to construct the berms, or install landscaping and irrigation required by and associated with the AT/FP Improvements, only the vehicle cable barrier system and bollards. If the contractor chooses to construct the berms, and not install landscaping/irrigation, he shall maintain the berms and protect them from erosion for the entire contract duration.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 15 - MECHANICAL

SECTION 15565

HEATING SYSTEM; GAS-FIRED HEATERS

12/01

-- End of Section Table of Contents --

SECTION 15565

HEATING SYSTEM; GAS-FIRED HEATERS
12/01

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z21.44	(1995) Gas-Fired Gravity and Fan Type Direct Vent Wall Furnaces
ANSI Z21.49	(1995; Z21.49a; Z21.49b) Gas-Fired Gravity and Fan Type Vented Wall Furnaces
ANSI Z21.66	(1996) Automatic Vent Damper Devices for Use with Gas-Fired Appliances
ANSI Z83.4	(1991; Z83.4a) Direct Gas-Fired Make-Up Air Heaters
ANSI Z83.6	(1990; Z83.6a; Z83.6b) Gas-Fired Infrared Heaters
ANSI Z83.8	(1996) Gas Unit Heaters
ANSI Z83.9	(1990; Z83.9a) Gas-Fired Duct Furnaces

INTERNATIONAL APPROVAL SERVICES (IAS)

CSA Directory	(updated continuously) Certified Appliances and Accessories

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA MG 1	(1998) Motors and Generators

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 211	(2000) Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances
NFPA 54	(1999) National Fuel Gas Code

UNDERWRITERS LABORATORIES (UL)

UL Gas&Oil Dir	(1999) Gas and Oil Equipment Directory

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Heating System; G-AE.
Installation; G-AE.

Detail drawings consisting of illustrations, schedules, performance charts, instructions, brochures, diagrams, and other information to illustrate the requirements and operation of the system. Detail drawings for space heating equipment, controls, associated equipment, and for piping and wiring. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearances for maintenance and operation.

SD-03 Product Data

Heating System; ; G-AO.

Spare parts data for each different item of materials and equipment specified, after approval of the detail drawings, and not later than 2 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

SD-06 Test Reports

Testing, Adjusting, and Balancing; G-AO.

Test reports shall be submitted in booklet form showing all field tests performed to adjust each component and all field tests performed to prove compliance with the specified performance criteria, upon completion and testing of the installed system. Each test report shall indicate the final position of controls.

SD-10 Operation and Maintenance Data

Instructions; G-AO.

Six complete copies of operating instructions outlining the step-by-step procedures required for system startup, operation and shutdown. The instructions shall include the manufacturer's name, model number, service manual, parts list, and brief description of all equipment and basic operating features. Six complete copies of maintenance instructions listing routine maintenance, possible breakdowns, repairs and troubleshooting guide. The instructions shall include simplified piping, wiring, and control diagrams for the system as installed.

1.3 GENERAL REQUIREMENTS

1.3.1 Nameplates

Each major component of equipment shall have the manufacturer's name,

address, type or style, model or serial number, and catalog number on a plate secured to the equipment.

1.3.2 Equipment Guards

Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts so located that any person may come in close proximity thereto shall be completely enclosed or guarded. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be guarded or covered with insulation of type specified for service.

1.3.3 Verification of Dimensions

The Contractor shall become thoroughly familiar with all details of the work, verify all dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing any work.

1.4 DELIVERY AND STORAGE

All equipment delivered and placed in storage shall be stored with protection from weather, humidity and temperature variations, dirt and dust, or other contaminants.

PART 2 PRODUCTS

2.1 STANDARD PRODUCTS

Material and equipment shall be standard products of a manufacturer regularly engaged in manufacturing of the products. Equipment shall essentially duplicate equipment that has been in satisfactory use at least 2 years prior to bid opening.

2.2 ELECTRICAL WORK

Electrical motor driven equipment shall be provided complete with motors, motor starters, and controls. Motors shall conform to NEMA MG 1. Electrical equipment and wiring shall be in accordance with Section 16415 ELECTRICAL WORK, INTERIOR. Electrical characteristics shall be as specified or indicated. Unless otherwise indicated motors of 1 Hpand above shall be high efficiency type. Motor starters shall be provided complete with thermal overload protection and other appurtenances necessary for the motor control specified. Each motor shall be of sufficient size to drive the equipment at the specified capacity without exceeding the nameplate rating of the motor. Manual or automatic control and protective or signal devices required for the operation specified and any control wiring required for controls and devices specified, but not shown, shall be provided.

2.3 HEATERS

Heaters shall be equipped for and adjusted to burn natural gas. Each heater shall be provided with a gas pressure regulator that will satisfactorily limit the main gas burner supply pressure. Heaters shall have an intermittent or interrupted electrically ignited pilot or a direct electric ignition system. Safety controls shall conform to the ANSI standard specified for each heater. Mounting brackets and hardware shall be furnished by the heater manufacturer and shall be factory finished to match the supported equipment. Seismic details shall be in accordance with

Sections 13080 SEISMIC PROTECTION FOR MISCELLANEOUS EQUIPMENT and 15070 SEISMIC PROTECTION FOR MECHANICAL EQUIPMENT.

2.3.1 Unit Heaters

Heaters shall conform to requirements of ANSI Z83.8. Heat exchangers shall be aluminized steel. Air discharge section shall be equipped with adjustable horizontal louvers and vertical louvers or fins. Fan shafts shall be either directly connected to the driving motor, or indirectly connected by multiple V-belt drive. Fans in one unit shall be of the same size. Heaters shall be power-vented separated combustion type, suitable for sidewall vent discharge and single-wall-thickness vent piping. Heaters shall have automatic ignition. Heaters shall have minimum steady state thermal efficiencies of 80 percent at maximum rated capacity and 75 percent at minimum rated capacity that is provided and allowed by the controls. Heaters shall be provided with a space thermostat which controls both unit's fan and burner.

2.4 THERMOSTATS

Thermostats shall be the adjustable electric or electronic type. Control wiring required to complete the space temperature control system shall be included. Thermostats shall have a 3 degree Fdifferential and a set point range of 40 to 75 degrees F. Thermostats shall be the single stage type.

2.5 VENT PIPING

Vent piping shall conform to the requirements of NFPA 54. Plastic material polyetherimide (PEI) and polyethersulfone (PES) are forbidden to be used for vent piping of combustion gases.

2.6 FACTORY FINISHES

Equipment and component items, when fabricated from ferrous metal, shall be factory finished with the manufacturer's standard finish.

PART 3 EXECUTION

3.1 INSTALLATION

Equipment shall be installed as indicated and in accordance with the recommendations of the equipment manufacturer and the listing agency, except as otherwise specified.

3.1.1 Heating Equipment

Heaters shall be installed with clearance to combustibles complying with minimum distances as determined by CSA Directory, UL Gas&Oil Dir and as indicated on each heater approval and listing plate. Heaters shall be independently supported from the building structure as indicated and shall not rely on support from suspended ceiling systems.

3.2 TESTING, ADJUSTING, AND BALANCING

Testing, adjusting, and balancing shall be as specified in Section 15990 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 15 - MECHANICAL

SECTION 15702

COMPUTER ROOM AIR CONDITIONING UNITS

2/02

-- End of Section Table of Contents --

SECTION 15702

COMPUTER ROOM AIR CONDITIONING UNITS
2/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AIR-CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

ARI 410	(1991) Forced-Circulation Air-Cooling and Air-Heating Coils

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. (ASHRAE)

ASHRAE 15	(1994; Errata 1994) Safety Code for Mechanical Refrigeration
ASHRAE 52.1	(1992) Air-Cleaning Devices used in General Ventilation for Removing Particulate Matter

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B16.22	(1995) Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
ASME B16.26	(1988) Cast Copper Alloy Fittings for Flared Copper Tubes
ASME B31.1	(1995; Addenda B31.1A and B31.1B) Power Piping
ASME B31.5	(1992; Addenda B31.5A) Refrigeration Piping
ASME BPVC SEC	(1998) Boiler and Pressure Vessel Codes

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 280	(1995; Rev. A) Seamless Copper Tube for Air Conditioning and Refrigeration Field Service

ETL TESTING LABORATORIES (ETL)

ETL DLP	(1995) Directory of ETL Listed Products

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2002) National Electrical Code

NFPA 90A (1996) Installation of Air Conditioning and Ventilating Systems

UNDERWRITERS LABORATORIES INC. (UL)

UL Elec Equip Dir (1998) Electrical Appliance and Utilization Equipment Directory

1.2 SYSTEM DESCRIPTION

Provide new computer room air conditioning unit[s] (CRACU) complete and ready for operation.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Computer room air conditioning units; G-AE.

Space temperature control system drawings; G-AE.

SD-06 Test Reports

CRACU production schedule and factory test schedule; G-AE.

Manufacturer's factory test plans; G-AE.

Factory test reports; G-AO.

Field test schedule; G-AO.

Manufacturer's field test plans; G-AO.

Field test reports; G-AO.

SD-07 Certificates

Certificate of Specification Compliance; .

Credentials of the manufacturer's field test representative; G-AO.

SD-08 Manufacturer's Instructions

Installation manual for each type of CRACU; G-AO.

SD-10 Operation and Maintenance Data

Submit in accordance with Section 01781, "Operation and Maintenance Data."

Computer room air conditioning units, Data Package 4; G-AO.

PART 2 PRODUCTS

2.1 COMPUTER ROOM AIR CONDITIONING UNITS (CRACU)

ASHRAE 15. Provide self-contained units, designed, and factory assembled, and factory tested. Unit shall be listed in UL Elec Equip Dir or ETL DLPfor computer room application. Unit shall include room cabinet and frame, floor stand, fan section, filter section, cooling coil, humidifier, controls, and, interconnecting piping internal to the CRACU.

2.1.1 Cabinet and Frame

2.1.1.1 Unit Cabinet

Unit frame shall be minimum 14 gage welded steel tubes or steel angles and shall be mill-galvanized or coated with an epoxy finish, or an approved manufacturer's standard finish, if equivalent.

Exterior panels shall be furniture grade steel sheet, minimum of 20 gage, mill-galvanized or coated with a corrosion-inhibiting epoxy finish, or an approved equivalent finish. Mill galvanized sheet metal shall be coated with not less than 1.25 ounces of zinc per square foot of two-sided surface. Mill rolled structural steel shall be hot-dip galvanized or primed and painted. Cut edges, burns and scratches in hot-dip galvanized surfaces shall be coated with galvanizing repair coating.

Provide removable panel for access to controls without interrupting airflow. Panels shall be gasketed to prevent air leakage under system operating pressure and shall be removable for service access without the use of special tools. Condensate pans shall be minimum 22 gage Type 304 stainless steel and shall be piped to drain.

Exterior surfaces of cabinets constructed of mill-galvanized steel shall be finished by the manufacturer's standard enamel finish color.

CRACU manufacturer's standard cabinet materials and finishes will be acceptable if considered equivalent to the above requirements by the Contracting Officer.

2.1.1.2 Cabinet Interiors Sound Attenuation

Provide a factroy-installed sound attenuation system in the interior of the CRACU cabinet.

CRACU cabinet panels interior shall be provided with one inch of 1 1/2 pound per cubic foot neoprene-coated fiber glass insulation on interior of cabinet panels. Insulation shall be applied to the cabinet panels with 100 percent adhesive coverage and both the insulation and the adhesive shall conform to NFPA 90A.

Fans located in the CRACU interior cabinet shall be provided with vibration isolators between their respective support frames and the cabinet framing.

CRACU manufacturer's standard interior cabinet sound attenuation materials and finishes will be acceptable if considered equivalent to the above requirements by the Contracting Officer.

]2.1.2 Fan Section

Fans which force air through coils into computer rooms shall have belt drives and adjustable sheaves sized to ensure achievement of design air flow by field adjustments. Fan system design shall be such that design air flow shall be achieved at the midpoint of sheave adjustment.

The supply air fan shall be AMCA certified, double-inlet/double-width, and equipped with forward-curved blades wheel. The supply air fan shall be statically and dynamically balanced and equipped with V-belt drive. The fan shall have self-aligning, permanently lubricated ball bearings with a minimum life span of 100,000 hours.

Provide V-belt drive sized for 200 percent of the motor nameplate rating. Fan speed shall be adjustable with cast iron variable pitch pulleys. Sheaves shall be within the middle one third of the sheave adjustment range.

The fan motor shall be drip-proof with NEMA rated frame, inherent overload protection, and sliding adjustable motor base. The maximum vibrations shall not exceed 2 mils (0.05 mm) in any plane.

2.1.3 Cooling Coil

Provide ARI 410 coils and slope for drainage. Coil shall be constructed of seamless copper tubes with plate aluminum fins. Each coil, in the production process, shall be individually tested at 320 psi with compressed air under water and verified to be air tight. Provide hydronic coils complete with drain and vent connections. Provide condensate drain pan of stainless steel construction with nonferrous connections and internal trap.

2.1.4 Filters

Provide UL listed[2] [4] [_____] inches thick deep pleated fiberglass throwaway type filters. Efficiency of filter bank shall be a minimum of 30 percent efficiency based on ASHRAE 52.1 requirements. Provide one complete spare filter bank set for installation prior to final acceptance testing covered in Part 3 of this section.

2.1.5 Humidifier

Humidifier section shall include liquid-level control, emergency overflow and automatic water supply system factory pre-piped for final connection. Provide stainless steel evaporator pan with water high level and low level alarms. Arrange system to be cleanable and serviceable.

Provide infrared type humidifier, including high intensity quartz lamps mounted above and out of water supply.

2.1.6 Condenser

2.1.6.1 Dry Coolers

The dry cooler shall be factory fabricated and shall comprise of casing, coil, and fan sections. The casing shall be constructed of aluminum sheets with aluminum legs, casing and legs provided with manufacturer's standard corrosion resistant finish.

The cooling fluid (water or water/glycol solution) shall flow through a coil made up of copper tubes and aluminum fins. The coils shall be leak tested at factory at 300 psi.

The fan section of the dry cooler shall comprise of factory balanced, direct driven metal propeller fan(s) complete with slow speed motor(s) and fan guard(s). The fan(s) shall be arranged for vertical discharge. The electrical connections and control connections shall be provided in a weatherproof enclosure mounted integral with the dry cooler.

Provide special corrosion protection in accordance with the requirements specified in this section in the paragraph, "Corrosion Protection For Coastal Installations".

2.1.7 Space Temperature Control System

Provide microprocessor control system integral with unit including electronic control center, control valves, sensors, wiring, and other appurtenances for workable system. Provide access panel or door in front of unit.

Isolate electronic control center from conditioned airstream to allow service while system is in operation. Provide control sensors in unit for cooling, dehumidifying, and humidifying. High-voltage circuits in system shall have individual leg overload protection. Starters, contactors, and relays shall be controlled by 24 volt control circuit.

High-voltage circuit components shall be protected by safety lock, dead-front panel. Mount nonautomatic, molded-case circuit breaker in high-voltage section of electrical panel. Operating mechanism shall prevent access to high-voltage electrical components until switched to "OFF" position.

Include the following control capabilities:

a. Capable of changing the set points and sensitivity of the space and humidity along with their low and high alarm points.

b. Logging capability of the last 10 alarms and run time.

c. Diagnostics

d. Refrigerant compressor sequencing

2.1.8 Alarm Panel System

Provide unit with cabinet-mounted alarm panel which shall monitor high and low space temperature, high and low space humidity, dirty filters, loss of airflow, loss of glycol flow. Provide underfloor water detector. Provide field accessible local audible alarm with silence pushbutton. Provide push-to-test lamps or all-lamp test pushbutton. CRACUs shall have local devices which provide signals for remote audible and visual alarming capability for the above specified alarm conditions.

2.1.9 Air Return and Delivery Orientation

Computer room air conditioning unit[s] shall be downflow discharge, top return, draw-thru cooling coil, and shall discharge air into a raised floor plenum with through an acoustically-lined sweep or acoustically-lined multiple turning vane elbows provided to direct the flow of air away from the back of the unit. Provide acoustical lining on the interior of the discharge air devices and the return air plenum in compliance with with

requirements specified hereinafter in paragraph "Cabinet Interiors Sound Attenuation".

2.1.10 Floorstand

Unit shall be provided with elevating floorstand or jacks for freestanding installation on the main building floor. Floorstand or jacks shall elevate the unit to the height of the raised computer floor and shall allow for leveling and locking at the desired height. Unit shall be fully gasketed (rubber or neoprene) to prevent air leakage at the raised floor penetration.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 CRACU System

Installation of each CRACU system including equipment, materials, installation, workmanship, fabrication, assembly, erection, examination, inspection, and testing, shall be in accordance with ASME B31.1, ASME B31.5, NFPA 70, as modified and supplemented by the requirements of this section and the CRACU manufacturer's recommendations.

3.1.2 Installation Instructions

Provide a manufacturer's installation manual for each type of CRACU.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 16 - ELECTRICAL

SECTION 16710

PREMISES DISTRIBUTION SYSTEM

09/02

-- End of Section Table of Contents --

SECTION 16710

PREMISES DISTRIBUTION SYSTEM
09/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ELECTRONIC INDUSTRIES ALLIANCE (EIA)

EIA ANSI/TIA/EIA-568-B	(2001) Commercial Building Telecommunications Cabling Standard
EIA ANSI/TIA/EIA-568-B.2-1	(2002) Transmission Performance Specifications for 4-pair 100 ohm Category 6 Cabling
EIA ANSI/TIA/EIA-569-A	(2001) Commercial Building Standard for Telecommunications Pathways and Spaces
EIA ANSI/TIA/EIA-606	(1993) Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
EIA ANSI/TIA/EIA-607	(1994) Commercial Building Grounding/Bonding Requirement Standard

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)

ICEA S-83-596	(1994) Fiber Optic Premises Distribution Cable

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2002) National Electrical Code

1.2 SYSTEM DESCRIPTION

The premises distribution system shall consist of inside-plant horizontal, riser, and backbone cables and connecting hardware to transport telephone and data (including LAN) signals between equipment items in a building.

The NORTHCOM Beddown and NCOC additions to Building 2 shall consist of one Category 5 cable for voice and four fiber optic multimode (MM) cable pairs for data to each workstation outlet. Each fiber optic cable shall be two strands. There shall be no common sheath for each individual fiber optic cables. Route the fiber optic cables and Category 5 cables from each workstation outlet to the telecommunications room on that same floor. The fiber optic backbone cabling shall consist of 6 (six)-12SM/24MM cable from existing Room B058 to each of the telecommunication Rooms B118, 1125, 2139 in the Beddown addition and from Room B058 to Room B073 in the NCOC

addition via the exterior underground ductbank. The cabling shall also consist of 1 (one)-6SM cable for the existing CATV system from the existing Room B058 to each of the telecommunication Rooms B118, 1125, 2139 in the Beddown addition and from Room B058 to Room B073 in the NCOC addition via the exterior underground ductbank. Each of the cables shall be terminated in a separate rack in the telecommunications room. The fibers shall be terminated with MT-RJ connectors in B058 and with SC connectors in the telecommunication rooms.

The Category 5 cabling shall be 4 (four) pair CAT 5 cables from each workstation outlet to a 110 cross-connect block in the telecommunications room on that same floor. At the workstation outlet, the CAT 5 cable shall be terminated into an 8(eight) position modular jack using the T568B wiring scheme.

The Category 5 backbone cabling shall consist of 2(two) 300 pair copper cables from the existing Room B058 to each of the telecommunication Rooms B118, 1125, 2139 in the Beddown addition. Provide 110 terminal blocks in B058 to the right side of the existing Admin Switch blocks. All cables shall be in cable trays or conduit from the patch panel/terminal blocks in B058 to patch panel/terminal blocks in the telecommunication rooms.

Provide a 27 mm conduit from the cable tray to each wall or floor outlet. For furniture systems, provide a 53 mm conduit from the cable tray to the furniture system consolidation point. Each consolidation point shall contain a 1 m fiber loop, on a fiber management system, in a 750 mm x 750mm x 150 mm box. The conduit shall extend from a 203 mm x 203 mm wall or column feed box (or a floor feed box if the cluster of workstations is not adjacent to a wall or column). The outlet box shall be fitted with a cover that is flush with the wall or floor. Provide workstation cables from the outlet box into the system furniture raceway system through a flexible connection. Locate wall outlets behind furniture panels or service walls.

1.2.1 SCI PDS, RED Red-Switch and BLACK Red-Switch

The following criteria apply to raceways, cable trays, and copper cabling.

a. Provide 1 m separation between parallel runs of underfloor cable trays of different classification levels.
b. Provide 50 mm separation between perpendicular crossings of underfloor cable trays of different classifications.
c. Provide 1 m separation between equipment racks of different classifications.
d. Provide 1 m separation between BLACK equipment racks or any electronic equipment, and RED cable tray.

1.2.2 Interior Protected Distribution System

An interior Protected Distribution system (PDS) is required for the transmission of SCI data outside of certified Sensitive Compartmented Information Facilities (SCIF) or required for the transmission of classified data that transitions an area of lower classification. Conduits and cable trays containing classified data may not be located in areas defined as Uncontrolled Access Areas (UAA) without being certified as a PDS by the government. A UAA extends from the structural floor to the structural ceiling in all rooms defined as part of each UAA.

1.2.3 Red Switch PDS

The red switch PDS consists of two identical, parallel distribution systems, one RED and one BLACK.

1.3 ENVIRONMENTAL REQUIREMENTS

Connecting hardware shall be rated for operation under ambient conditions of 32 to 140 degrees F and in the range of 0 to 95 percent relative humidity, noncondensing.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Premises Distribution System; G, AO.

Detail drawings including a complete list of equipment and material. Detail drawings shall contain complete wiring and schematic diagrams and other details required to demonstrate that the system has been coordinated and will function properly as a system. Drawings shall include vertical riser diagrams, equipment rack details, elevation drawings of telecommunications closet walls, outlet face plate details for all outlet configurations, sizes and types of all cables, conduits, and cable trays. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearance for maintenance and operation.

Installation; G, AO.

Record drawings for the installed wiring system infrastructure per EIA ANSI/TIA/EIA-606. The drawings shall show the location of all cable terminations and location and routing of all backbone and horizontal cables. The identifier for each termination and cable shall appear on the drawings.

Protective Distribution System; G-AO.

Detailed drawings including a complete list of equipment and material. Equipment shall include all pull boxes and lockable enclosures. Detail drawings shall contain conduit routing and equipment shown in plan view, vertical riser diagrams, and schematic diagrams, and other details required to demonstrate that the system has been coordinated and will function properly as a system. Provide a separate submittal for the SCI PDS, RED Red-Switch PDS, and BLACK Red-Switch PDS. Drawings for each system shall include vertical riser diagram, conduit routing and conduit in plan view, schematic diagrams and details. Drawings shall show the sizes and types of conduits and equipment. Drawings shall show the proposed layout and anchorage of conduit and equipment and equipment relationship to other parts of the

work including clearances for maintenance and operation.

Installation; G-AO.

Record drawings of each system, SCI PDS, RED Red-Switch, and BLACK Red-Switch. The drawings shall include routing of all conduit and location of all equipment. The identifier for all conduit and equipment shall appear on the drawings.

SD-03 Product Data

Record Keeping and Documentation; G, AO.

Documentation on cables and termination hardware in accordance with EIA ANSI/TIA/EIA-606. Provide printed and electronic versions, including a licensed copy of the software.

Spare Parts.

Lists of spare parts, tools, and test equipment for each different item of material and equipment specified, after approval of detail drawings, not later than 2 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply, and a list of spare parts recommended for stocking.

Manufacturer's Recommendations.

Where installation procedures, or any part thereof, are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations, prior to installation shall be provided. Installation of the item will not be allowed to proceed until the recommendations are received and approved.

Test Plan; G, AO.

Test plan defining the tests required to ensure that the system meets technical, operational and performance specifications, 60 days prior to the proposed test date. The test plan must be approved before the start of any testing. The test plan shall identify the capabilities and functions to be tested, and include detailed instructions for the setup and execution of each test and procedures for evaluation and documentation of the results.

Qualifications; G-A0.

The qualifications of the Manufacturer, Contractor, and the Installer to perform the work specified herein. This shall include proof of the minimum qualifications specified herein.

SD-06 Test Reports

Test Reports; G, AO.

Test reports in booklet form with witness signatures verifying execution of tests. Test results will also be provided on 3-1/2 inch diskettes in ASCII format. Reports shall show the field tests performed to verify compliance with the specified

performance criteria. Test reports shall include record of the physical parameters verified during testing. Test reports shall be submitted within 14 days after completion of testing.

SD-07 Certificates

Premises Distribution System.

Written certification that the premises distribution system complies with the EIA ANSI/TIA/EIA-568-B.2-1, EIA ANSI/TIA/EIA-569-A, and EIA ANSI/TIA/EIA-606 standards.

Materials and Equipment.

Where materials or equipment are specified to conform, be constructed or tested to meet specific requirements, certification that the items provided conform to such requirements. Certification by a nationally recognized testing laboratory that a representative sample has been tested to meet the requirements, or a published catalog specification statement to the effect that the item meets the referenced standard, will be acceptable as evidence that the item conforms. Compliance with these requirements does not relieve the Contractor from compliance with other requirements of the specifications.

Installers; G, AO.

The Contractor shall submit certification that all the installers are factory certified to install and test the provided products.

1.5 QUALIFICATIONS

1.5.1 Minimum Contractor Qualifications

All work under this section shall be performed by and all equipment shall be furnished and installed by a certified Telecommunications Contractor, hereafter referred to as the Contractor. With the exception of furnishing and installing conduit, electrical boxes, and pull wires, this work shall not be done by the Electrical Contractor. The Contractor shall have the following qualifications in Telecommunications Systems installation:

a. Contractor shall have a minimum of 3 years experience in the application, installation and testing of the specified systems and equipment. Contractor shall have a Building Industry Consulting Services International (BICSI) Registered Communications Distribution Designer (RCDD) on staff to design and coordinate the design and installation. ~~The on-site installation supervisor shall be BISCSI certified as a cable technician~~The on-site installation supervisor shall be BICSI certified as a cable technician.

b. All supervisors and installers assigned to the installation of this system or any of its components shall have factory certification from each equipment manufacturer that they are qualified to install and test the provided products. General electrical trade staff (electricians) shall not be used for the installation of the premises distribution system cables and associated hardware.

c. All installers assigned to the installation of this system or any of its components shall have a minimum of 3 years experience in the installation of the specified copper and fiber optic cable and components. All installers shall be BICSI certified as Apprentices, Installers, or Technicians.

1.5.2 Minimum Manufacturer Qualifications

The equipment and hardware provided under this contract will be from manufacturers that have a minimum of 3 years experience in producing the types of systems and equipment specified.

1.6 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variation, dirt and dust or other contaminants.

1.7 OPERATION AND MAINTENANCE MANUALS

Commercial off the shelf manuals shall be furnished for operation, installation, configuration, and maintenance for all products provided as a part of the premises distribution system. Specification sheets for all cable, connectors, and other equipment shall be provided.

1.8 RECORD KEEPING AND DOCUMENTATION

1.8.1 Cables

A record of all installed cable shall be provided in hard copy format on per EIA ANSI/TIA/EIA-606. The cable records shall include only the required data fields per EIA ANSI/TIA/EIA-606. Provide an electronic caopy of the datebase or spread sheet on compact disk. Provide an elecronic copy on compact disk of any label printing data.

1.8.2 Termination Hardware

A record of all installed patch panels and outlets shall be provided in hard copy format per EIA ANSI/TIA/EIA-606. The hardware records shall include only the required data fields per EIA ANSI/TIA/EIA-606. Provide printed and electronic versions, including a licensed copy of the software.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall be the manufacturer's latest standard design that has been in satisfactory use for at least 1 year prior to installation. Materials and equipment shall conform to the respective publications and other requirements specified below and to the applicable requirements of NFPA 70.

2.2 UNSHIELDED TWISTED PAIR CABLE SYSTEM

2.2.1 Cable Insulation

For each individual Category 5 cable, the insulation, material used on each

pair shall be exactly the same in all physical, electrical, and chemical respects. The use of Teflon insulated, plenum rated Category 5 cable is acceptable for both plenum and non-plenum applications. If Teflon insulated plenum rated cable is used by the Contractor, it shall be Type 4x0, where all four pairs are Teflon insulated. Type 3x1 and 2x2 are not acceptable. ~~(Refer to attached cut sheets for submittal.)~~

2.2.2 Backbone Cable

Backbone cable shall meet the requirements of ICEA S-80-576 and EIA ANSI/TIA/EIA-568-B for Category 3 100-ohm unshielded twisted pair cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMR per NFPA 70. Copper riser cable shall be 300 pair cable.

2.2.3 Horizontal Cable

Horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-B.2.1 for Category 5 cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. ~~Conductor shall be solid tubbed 24 AWG copper.~~ Conductors shall be solid untinned 24 AWG copper. Cable shall be rated CMPper NFPA 70.

2.2.4 Connecting Hardware

Connecting and cross-connecting hardware shall be the same category as the cable it serves. Hardware shall be in accordance with EIA ANSI/TIA/EIA-568-B.

2.2.4.1 Telecommunications Outlets

Wall and desk outlet plates shall come equipped with modular jacks and fiber optic connectors. Modular jacks shall be the same category as the cable they terminate and shall meet the requirements of EIA ANSI/TIA/EIA-568-B. Modular jack pin/pair configuration shall be T568B per EIA ANSI/TIA/EIA-568-B. Faceplates shall be provided for all outlets, including exterior locations, and shall be impact resistant plastic, color as indicated in Section 09915. Outlet assemblies used in the premises distribution system shall consist of modular jacks and connectors assembled into both simplex and duplex outlet assemblies in single or double gang covers. The modular jacks shall conform to the requirements of EIA ANSI/TIA/EIA-568-B, Category 5. Provide mounting plates for work stations system furniture and match the system furniture color.

2.2.4.2 Workstation Outlets

The outlet boxes shall support cabling, cable management, face plates, and connectors. The faceplate shall support a minimum of two CAT 5 jacks, four small form factor fiber optic connectors (positions A, B, C, & D). Each fiber optic connector shall be unique and not allow the insertion of any other connector type. Connector arrangements shall be identical throughout the system. Three small form factor connectors shall be used as follows: the A position shall be used for Black (unclassified) connectors, the B position shall be used for Red (Classified) connectors, the C position shall be used for another collateral connector. Position D shall be unused and the fourth fiber pair shall be terminated. Each of the four fiber cunnectors in the outlet shall be a different color. Provide a single CAT

5 jack in each faceplate. All unused spaces shall have snap-in blank covers. Wall mounted outlet boxes shall have all cables to user devices exiting from the side or bottom of the box, or at a intermediate angle down on the front. Outlet boxes or plates mounted on modular furniture will follow the requirements established above for wall mounted outlet boxes, but may have a different connector arrangement.

2.2.4.3 Voice Outlets

Provide one CAT 5 jack in each voice outlet.

2.2.4.4 Patch Cords

Patch cords shall be cable assemblies consisting of flexible, twisted pair stranded wire with eight-position plugs at each end. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Patch cords shall be wired straight through; pin numbers shall be identical at each end and shall be paired to match T568B patch panel jack wiring per EIA ANSI/TIA/EIA-568-B. Patch cords shall be unkeyed. Patch cords shall be factory assembled.

2.2.4.5 Terminal Blocks

Terminal blocks shall be wall mounted wire termination units consisting of insulation displacement connectors mounted in plastic blocks, frames or housings. Blocks shall be type 110 which meet the requirements of EIA ANSI/TIA/EIA-568-B for Catagory 5. Blocks shall be mounted on standoffs and shall include cable management hardware. Insulation displacement connectors shall terminate 22 or 24 gauge solid copper wire as a minimum, and shall be connected in pairs so that horizontal cable and connected jumper wires are on separate connected terminals.

2.3 FIBER OPTIC CABLE SYSTEM

2.3.1 Backbone Cable

2.3.1.1 Multimode

Multimode fiber optic backbone cable shall meet the requirements of EIA ANSI/TIA/EIA-568-B and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count and aggregate length at regular intervals. Cable shall be rated OFNR per NFPA 70.

2.3.2 Horizontal Distribution Cable

2.3.2.1 Multimode

Multimode fiber optic horizontal cable shall meet the requirements of EIA ~~ANSI/TIA/EIA-568-A~~ANSI/TIA/EIA-568-B and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type, two strands. Cables feeding telectommunication outlets shall have a maximum of two fibers in a single cable jacket. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count, fiber type, and aggregate length at regular

intervals of [2] [3] [_____] feet. Cable shall be rated and marked OFNP per NFPA 70. Match multimode fiber optic horizontal cable color codes with existing Building 2, NORAD multimode fiber optic horizontal cable.

In addition to the requirements of this section, for MM FO backbone cable, comply with the requirements of MM FO backbone cable specified in Section 16711, 2.2 Cable and all the subparagraphs specified within.

2.3.3 Connecting Hardware

2.3.3.1 Connectors

Connectors shall be dual SC type with ceramic ferrule material with a maximum insertion loss of .5 dB. Connectors shall meet performance requirements of EIA ~~ANSI/TIA/EIA-568-A~~ANSI/TIA/EIA-568-B. Connectors shall be field installable. Connectors shall utilize adhesive for fiber attachment to ferrule. Connectors shall terminate fiber sizes as required for the service. Station cable faceplates shall be provided according to paragraph "Telectommunication Outlets" shall be , with double-sided female SC coupler. Mounting plates shall be provided for system furniture and shall match the furniture system in color.

2.3.3.2 Small Form Factor Connectors

~~Small Form Factor connectors shall meet the performance requirements of ANSI/TIA/EIA 568-A~~Small Form Factor MTRJ connectors shall meet the performance requirements of EIA ANSI/TIA/EIA-568-B.. Each connector shall terminate 2 fibers. Provide connectors for each level of classification so that each level has a different physical configuration that cannot mate with a different connector type. Connectors shall be color coded by connector type/security level.

2.3.3.3 Patch Panels

Patch panels shall be a complete system of components by a single manufacturer, and shall provide termination, splice storage, routing, radius limiting, cable fastening, storage, and cross-connection. Patch panels shall be 19 inch rack mounted23 inch panels. Patch panels shall provide strain relief for cables. Panels shall be labeled with alphanumeric x-y coordinates. Patch panel connectors and couplers shall be the same type and configuration as used elsewhere in the system. Each rack shall contain only one type of connector. Organize connectors first by floor, then by room and finally by faceplace.

2.3.3.4 Patch Cords

Patch cords shall be cable assemblies consisting of flexible optical fiber cable with connectors of the same type as used elsewhere in the system. Optical fiber shall be the same type as used elsewhere in the system. Patch cords shall be complete assemblies from manufacturer's standard product lines.

2.4 TELECOMMUNICATIONS CLOSETS

The TC shall conform to ANSI/TIA/EIA 569. ~~The MDF Room B007 shall serve as the basement TC for ARSPACE.~~TCs shall have fully opening, lockable doors that are at least .91m wide and 2.0m tall. Door sills and center mullions are not allowed. The door shall open outward. The TCs shall have backboards on two walls, one short one long. The walls shall be lined with

1440mm high backboards.

2.4.1 Conduits, Raceways, and Ducts

Each closet on a floor shall be interconnected with two conduits. the closets will connect to the horizontal pathway via cable trays. The closets will be connected vertically with sleeves and slots. Cable sleeves will be used to support the 300 pair UTP cables while cable slots will be used to support the FO cables. The second floor closets shall have two sleeves and three cable slots extending to the entry level closets. The entry level closets shall have for sleeves and six cable slots extending to the basement level closet. A wall mount and overhead cable ladder system shall be installed above each cable slot and rack for connectivity between the horizontal cable trays and the TC racks. Sleeves and slots shall not be left open after cable installation. All sleeves and slots shall be firestopped.

2.4.2 Power

For each horizontal section of backboard provide one 3-wire 120V AC duplex electrical outlet on a dedicated circuit for equipment power. Convenience outlets shall be identified and marked. Convenience outlets shall connect to non-essential power, except one shall be connected to essential utility power.

2.5 EQUIPMENT RACKS

2.5.1 Floor Mounted Open Frame

~~Floor mounted equipment racks shall be welded steel or extruded aluminum relay racks with uprights to mount equipment 19 inches23 inches wide. Uprights shall be 3 inch deep channel, 1 1/4 inches wide, drilled and tapped 12-24 in a 1/2 inch pattern. Racks shall be provided with a standard top crossmember, and predrilled base plate to allow floor fastening. Open frame equipment racks shall be 7 feet in height and painted. Provide a APW 99 GSP5006 120V, 20A power strip and a APW CBB78 gound bus for each equipment rack. Mount on rear of rack.~~There are no open frame racks. All racks are floor mounted as specified in 2.5.3.

2.5.2 Cable Guides

Cable guides shall be specifically manufactured for the purpose of routing cables, wires and patch cords horizontally and vertically on 19 inch23 inch equipment racks. Cable guides shall consist of ring or bracket-like devices mounted on rack panels for horizontal use or individually mounted for vertical use. Cable guides shall mount to racks by screws and/or nuts and lockwashers.

2.5.3 Floor Mounted Cabinets

Equipment cabinets shall be floor mounted enclosures with side panels, rear louvered metal doors, depth-adjustable front and rear mounting rails, and louvered top. All cabinets shall have sides, louvered tops, and louvered back doors, but shall not have front doors. ~~Provide top-discharge ventilation fans for racks not mounted on raised flooring~~Provide top-discharge ventilation fans for all racks.. Vertical cable management devices shall be integral to the cabinet. ~~Provide a power controller that has an on-off switch and a 20 amp circuit breaker that feeds a power strips with 12 outlets within the cabinet.~~Provide 2 (two) duplex receptacles in

each rack, each receptacle shall be fed from a dedicated 20-amp circuit breaker. A full height ground bar with #10-24 taps at EIA spacing shall be provided in all racks. Large equipment racks shall mount eqipment wide and shall be high and deep unless otherwise shown. Standard equipment racks shall mount equipment 19 inches23 inches and shall be 72 inches high and 30 inches deep unless otherwise shown. Cabinet exteriors shall be painted blue.

2.6 EQUIPMENT MOUNTING BACKBOARD

Plywood backboards shall be provided, thick, AC plywood painted with white or light colored paint. Plywood shall be fire rated or treated with two coats of fire resistant paint.

2.7 TELECOMMUNICATIONS OUTLET BOXES

Electrical boxes for telecommunication outlets shall be 4-11/16 inch square by 2-1/8 inches deep with minimum 3/8 inch deep single or two gang plaster ring as shown. Provide a minimum 1 inch conduit.

2.8 ACCESS ASSISTANCE TELEPHONE

A weatherproof, surface mounted, access assistance telephone shall be provided where indicated. The telephone shall be fully ADA compliant as specified in ADDAAG 4.10.14 and ASME 17.1. The telephone shall be activated by a single button. The button shall be 21 mm diameter minimum and made of metal. The telephone shall be equipped with a second button that signals the receiving agent that a hearing impaired person is using the telephone. Two LED indicators shall be incorporated in the phone, one to show that a call has been placed, and the other to indicate that it has been answered. The telephone shall incorporate grade 2 Braille and raised lettering to aid sight impaired persons in identifying the phone. The telephone shall be equipped with a full duplex speaker phone. The telephone shall respond to incoming calls, giving the caller the ability to converse with a user at the telephone, to listen through the telephone's microphone without enabling the speaker, to diagnose the telephone's operation or to program the telephone's auto-dial button and other operational features. The telephone shall be powered by 5 to 25 VDC and shall be provided with a 120 VAC adapter. The telephone shall have a brushed stainless steel face plate and be fitted for flush mounting.

PART 3 EXECUTION

3.1 INSTALLATION

System components and appurtenances shall be installed in accordance with NFPA 70, manufacturer's instructions and as shown. Necessary interconnections, services, and adjustments required for a complete and operable signal distribution system shall be provided. Components shall be labeled in accordance with EIA ANSI/TIA/EIA-606. Penetrations in fire-rated construction shall be firestopped in accordance with Section 07840 FIRESTOPPING. Conduits, outlets and raceways shall be installed in accordance with Section 16415 ELECTRICAL WORK, INTERIOR and EIA ANSI/TIA/EIA-569-A. Wiring shall be installed in accordance with EIA ANSI/TIA/EIA-568-B and as specified in Section 16415 ELECTRICAL WORK, INTERIOR. Fiber optic cableing shall be installed in accordance with TIA/EIA-TSB-72.Wiring, and terminal blocks and outlets shall be marked in accordance with EIA ANSI/TIA/EIA-606. Cables shall not be installed in the same cable tray, utility pole compartment, or floor trench compartment with

ac power cables. Cables not installed in conduit or wireways shall be properly secured and neat in appearance and, if installed in plenums or other spaces used for environmental air, shall comply with NFPA 70 requirements for this type of installation. Organize fiber loops in communication closet racks. All maintenance loops will be stored using cable management hardware and accessories.

3.1.1 Horizontal Distribution Cable

The rated cable pulling tension shall not be exceeded. Cable shall not be stressed such that twisting, stretching or kinking occurs. Cable shall not be spliced. Fiber optic cables shall be installed either in conduit or through type cable trays to prevent microbending losses. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items. Placement of cable parallel to power conductors shall be avoided, if possible; a minimum separation of 12 inches shall be maintained when such placement cannot be avoided. Cables shall be terminated; no cable shall contain unterminated elements. Minimum bending radius shall not be exceeded during installation or once installed. Cable ties shall not be excessively tightened such that the transmission characteristics of the cable are altered. In raised floor areas, cable shall be installed after the flooring system has been installed. Cable [6] [_____] feet long shall be neatly coiled not less than [12] [_____] inches in diameter below each feed point in raised floor areas.

Install four fiber optic multimode (MM) cable pairs for data to each workstation outlet. Each fiber optic cable shall be two strands. There shall be no common sheath for each individual fiber optic cables. Route the fiber optic cables and Category 5 cables from each workstation outlet to the telecommunications room on that same floor.

Install 1 (one)-4 (four) pair Category 5 cable from each workstation outlet to a 110 cross-connect block in the telecommunications room on that same floor. At the workstation outlet, the CAT 5 cable shall be terminated into an 8(eight) position modular jack using the T568B wiring scheme.

3.1.2 Riser and Backbone Cable

Vertical cable support intervals shall be in accordance with manufacturer's recommendations. Cable bend radius shall not be less than ten times the outside diameter of the cable during installation and once installed. Maximum tensile strength rating of the cable shall not be exceeded. Cable shall not be spliced.

Install 6 (six)-12SM/24MM cable from the existing Room B058 to each of the telecommunication Rooms B118, 1125, 2139 in the Beddown addition and from Room B058 to Room B073 in the NCOC addition via the exterior underground ductbank. Install 1 (one)-6SM cable for the existing CATV system from the existing Room B058 to each of the telecommunication Rooms B118, 1125, 2139 in the Beddown addition and from Room B058 to Room B073 in the NCOC addition via the exterior underground ductbank. Each of the cables shall be terminated in a separate rack in the telecommunications room. The fibers shall be terminated with MT-RJ connectors in B058 and with SC connectors in the telecommunication rooms.

Install 2 (two) 300 pair copper cables from the existing Room B058 to each of the telecommunication Rooms B118, 1125, 2139 in the Beddown addition. Provide 110 terminal blocks in B058 to the right side of the existing Admin Switch blocks.

All cables shall be in cable trays or conduit from the patch panel/terminal blocks in B058 to patch panel/terminal blocks in the telecommunication rooms.

Provide telecommunication outlets (data and voice) as shown on the drawings. Outlets and MTRJ connectors shall match the existing outlets in the existing NORAD building 2. The outlets shall support cabling, cable management, faceplates and connectors.

Provide voice-only outlets as shown on the drawings. Voice only outlets shall utilize a single-gang box and faceplate with one CAT 5 jack. Voice only outlets shall be located at a minimum inside each TC, electrical room, mechanical room, elevator equipment room, the Men's and Women's locker room, near the outside of SCIF entrance doors and near the outside entrance doors to the building.

3.1.3 Telecommunications Outlets

3.1.3.1 Faceplates

As a minimum each jack shall be labeled as to its function and a unique number to identify cable link.

3.1.3.2 Cables

Unshielded twisted pair and fiber optic cables shall have a minimum of 6 inches of slack cable loosely coiled into the telecommunications outlet boxes. Minimum manufacturers bend radius for each type of cable shall not be exceeded.

Terminate one CAT 5 and four fiber pairs. All cables shall exit the outlet boxes from the side or the bottom of the box, or at an intermediate angle down the front.

3.1.3.3 Pull Cords

Pull cords shall be installed in all conduit serving telecommunications outlets which do not initially have fiber optic cable installed. Pull cords shall be installed in all conduit serving telecommunication outlets, communication racks, and other communication equipment, including conduit which has fiber optic cable installed.

3.1.4 Terminal Blocks

Terminal blocks shall be mounted in orderly rows and columns. Adequate vertical and horizontal wire routing areas shall be provided between groups of blocks. Industry standard wire routing guides shall be utilized.

Provide 2 (two) 300 pair terminal blocks in each TC. Half of the 110 blocks shall be dedicated to horizontal connectivity and half shall be dedicated to the riser.

3.1.5 Unshielded Twisted Pair Patch Panels

Patch panels shall be mounted in equipment racks with sufficient modular jacks to accommodate the installed cable plant plus 25 percent spares. Cable guides shall be provided above, below and between each panel.

3.1.6 Fiber Optic Patch Panels

Patch panels shall be mounted in equipment racks with sufficient ports to accommodate the installed cable plant plus 10 percent spares. A slack loop of fiber shall be provided within each panel. Loop shall be [3] [_____] feet in length. The outer jacket of each cable entering a patch panel shall be secured to the panel to prevent movement of the fibers within the panel, using clamps or brackets specifically manufactured for that purpose.

Each rack shall contain only one type of connector. Organize connectors, first by floor, then by room, and finally by faceplate.

3.1.7 Equipment Racks

Open frame equipment racks shall be bolted to the floor slab or raised floor. Cable guides shall be bolted or screwed to racks. Racks shall be installed level. Ganged racks shall be bolted together. Ganged rack cabinets shall have adjacent side panels removed. Slots with dressed edges and covers shall be provided under each equipment rack.

Provide equipment racks to support all patching and cable management requirements. Only 75 percent of the vertical mounting space in each rack may be used. Provide a minimum of 10 percent space connectors in each row.

3.1.8 Rack Mounted Equipment

Equipment to be rack mounted shall be securely fastened to racks by means of the manufacturer's recommended fasteners.

3.1.9 Rack Mounted Fiber Management

Fiber optic cable routed through a rack and not terminated in a patch panel shall be stored on a fiber management system with a loop. Organize the cables in the same arrangement that they are terminated in at their originating patch location.

3.1.10 Backboards

Backboards shall be mounted with flush hardware with the bottom edge in contact with the floor.

3.1.11 Interior Protected Distribution System

Each PDS shall consist of IMC or RMC conduit. Secure each fitting with epoxy. Run each PDS in the most direct route possible and bond one end to ground in accordance with ANSI/TIA/EIA-607. Install pull boxes 375 mm wide 1500 mm long, and 200 mm deep so that no segment between boxes for runs that more than 30 m. Pull boxes in a PDS shall have a padlock hasp that accepts the government locks, have non-removable hinge pins, and no fasteners that can be removed for access. Mark each pull box or enclosure with RED tape. Pull cords shall be installed in all PDS (SCI and Red Switch) conduits.

3.1.11.1 SCI PDS

Provide the following SCI PDS conduit runs: 103mm conduit from Room 1081 to Room B111, 53mm conduit from Room 1081 to Room B122A, 53mm conduit from Room 1081 to Room B112B, and 53mm conduit from Room 1081 to Room 2134. Run conduits to Rooms B111, B122A, B112B and 2134 to a pull box in the center

of the room. Size pull boxes to the conduit per EIA/TIA-569 standards. The SCI PDS shall not share conduits nor pull boxes with any other PDS; each PDS is separate and stand alone system.

3.1.11.2 Red Switch PDS

The Red Switch PDS consists of two identical, parallel distribution systems, one Red and one Black, that feed common 100mm x 100mm outlet boxes with a double gang plaster ring at the location where the red phone is located. Install two 103 mm conduits (one Red and one Black) from the appropriate underfloor tray system in the Red Switch B009 to a lockable enclosure (914 mm x 610 mm x 152 mm) with a padlock hasp in each TC. Install a 13 mm conduit from the enclosure in each TC to each Red Switch outlet box (feed the outlets from a TC on the Same floor as the outlet). There are 150 Red Switch outlets throughout the building. Contact the Contracting Officer for the locations of user outlets. Each of the 150 conduits is 50m in length. The Red Switch PDS shall not share conduits or pull boxes with any other PDS; each PDS is a separate and stand alone system.

3.1.12 Telecommunications Service Entrance Facility

The existing Black/Collateral telecommunications service entrance is located in Main Communications RM B058. Terminate outside plant cables in dedicated racks.

The annex SCI telecommunications service entrances will be located Room 1081 and B009. The drawings depict which ducts and cables go into each area. SCI Outside plant cables shall be terminated in dedicated racks.

3.1.13 Conference Rooms

Provide structural support for monitors, projectors and screens. The conference room shall be provided with a signal grid and connected to the horizontal conveyance system. Provide signal grid and connected to the horizontal conveyance system. Provide outlets and interconnecting empty raceways in select rooms as described in the drawings.

3.2 TERMINATION

Cables and conductors shall sweep into termination areas; cables and conductors shall not bend at right angles. Manufacturer's minimum bending radius shall not be exceeded. When there are multiple system type drops to individual workstations, relative position for each system shall be maintained on each system termination block or patch panel.

3.2.1 Unshielded Twisted Pair Cable

Each pair shall be terminated on appropriate outlets, terminal blocks or patch panels. No cable shall be unterminated or contain unterminated elements. Pairs shall remain twisted together to within the proper distance from the termination as specified in EIA ~~ANSI/TIA/EIA-568-A~~ ANSI/TIA/EIA-568-B. Conductors shall not be damaged when removing insulation. Wire insulation shall not be damaged when removing outer jacket.

3.2.2 Fiber Optic Cable

Each fiber shall have connectors installed. The pull strength between the connector and the attached fiber shall be not less than [25] [_____] pounds. The mated pair loss, without rotational optimization, shall not exceed 1.0 dB. Fiber optic connectors shall be installed per EIA ~~ANSI/TIA/EIA-568-A~~ ANSI/TIA/EIA-568-B.

3.3 GROUNDING

Signal distribution system ground shall be installed in the telecommunications entrance facility and in each telecommunications closet in accordance with EIA ANSI/TIA/EIA-607 and Section 16415 ELECTRICAL WORK, INTERIOR. Equipment racks shall be bonded to the nearest Telecommuncations Grounding Busbar or Red Ground Bus, as appropriate.

Bond all racks directly to the appropriate ground bar. Daisy chaining is not allowed. Bond RED equipment to the RED TGB and BLACK equipment to the BLACK TBG.

3.3.1 Signal Reference Grounding System for Communications Systems

Grounding shall comply with TIA/EIA-607, IEEE 1100, and NFPA 70

3.3.1.1 Telecommunications Main Ground Bar (TMGB)

The teelcommunication main ground bar is located in Room B058 of the existing building. Provide an extrnsion to the telecommunications main ground bar using A #1/0 bonding jumper. Provide bolt holes to support all bonding conductors plus 10% spare holes.

3.3.1.2 Telecommunications Grounding Busbar (TGB)

Provide a telecommunications grounding busbar in each TC, in each room with an equipment rack, and adjacent to each location where communications service entrance ducts enter the facility. Provide a TGB in each SCIF WORKROOM. Busbars shall be located under raised floors, or wall mounted where there are no raised floors. Provide bolt holes to support all bonding conductors plus 20% additional spare holes.

3.3.1.3 Telecommunications Bonding Backbone (TBB)

The bonding backbone conductor shall be # 1/0 minimum. Bond each TGB to the TBB. Bond the isolated ground bus of each Non-Essential ADP and Critical Equipment panelboard or switchboard to the TBB with a conductor the same size as the feeder isolated grounding conductor, but no smaller than #6.

3.3.1.4 NORAD/USSPACECOM Red Ground Buses

Provide an additional TGB to serve as a Red ground bus in each room with an equipment rack, except for TC's. Provide an additional TGB to serve as a Red ground bus in each SCIF WORKROOM. Bond each Red ground bus directly to a ground rod in a test well that is part of the ring-ground with a #1/0 minimum conductor.

3.3.1.5 Raised Floor Grounding

The raised floor will serve as an equipotential plane that conforms to MIL-HDBK-419A. Bond every other pedestal around the perimeter of each contiguous raised floor area and every fourth interior pedestal in both

directions to the building structure and Black TGB.

3.4 ADDITIONAL MATERIALS

The Contractor shall provide the following additional materials required for facility startup.

a. 10 of each type outlet.

b. 10 of each type cover plate.

c. 1 of each type terminal block for each telecommunications closet.

d. 4 Patch cords of 10 feet for each telecommunications closet.

e. 1 Set of any and all special tools required to establish a cross connect and to change and/or maintain a terminal block.

3.5 ADMINISTRATION AND LABELING

3.5.1 Labeling

3.5.1.1 Labels

All labels shall be in accordance with EIA ANSI/TIA/EIA-606.

3.5.1.2 Cable

All cables will be labeled using color labels on both ends with encoded identifiers per EIA ANSI/TIA/EIA-606.

3.5.1.3 Termination Hardware

All workstation outlets and patch panel connections will be labeled using color coded labels with encoded identifiers per EIA ANSI/TIA/EIA-606.

3.6 TESTING

Materials and documentation to be furnished under this specification are subject to inspections and tests. All components shall be terminated prior to testing. Equipment and systems will not be accepted until the required inspections and tests have been made in accordance with the approved Test Plan submitted by the Contractor, demonstrating that the signal distribution system conforms to the specified requirements, and that the required equipment, systems, and documentation have been provided. The Contractor shall submit Test Reports as they are completed.

3.6.1 Unshielded Twisted Pair Tests

All metallic cable pairs shall be tested for proper identification and continuity. All opens, shorts, crosses, grounds, and reversals shall be corrected. Correct color coding and termination of each pair shall be verified in the communications closet and at the outlet. Horizontal wiring shall be tested from and including the termination device in the communications closet to and including the modular jack in each room. Backbone wiring shall be tested end-to-end, including termination devices, from terminal block to terminal block, in the respective communications closets. These test shall be completed and all errors corrected before any other tests are started.

3.6.2 Category 3 and Category 5 Circuits

Twenty-five percent of the installed Category 3 circuits, selected on a random basis, and all Category 5 circuits shall be tested using a test set that meets the Class II accuracy requirements of EIA TSB 67 standard. Testing shall use the Basic Link Test procedure of EIA TSB 67. If more than 5 percent of the Category 3 circuits tested fail, then all circuits shall be tested. Cables which contain failed circuits shall be replaced and retested to verify the standard is met.

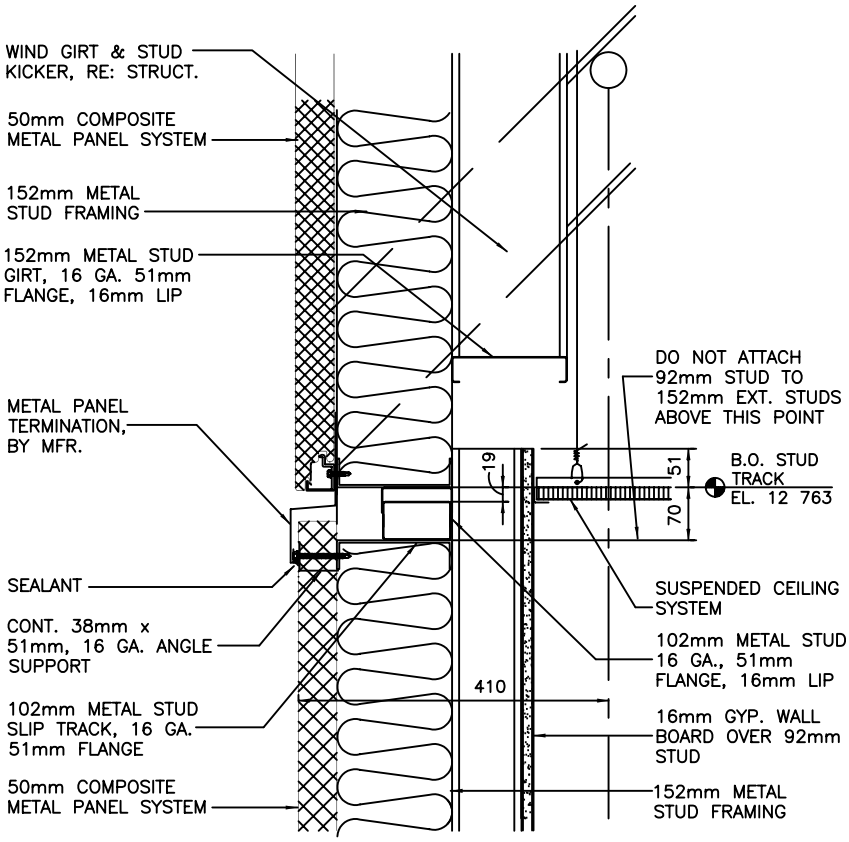
3.6.3 Fiber Optic Cable

Unless stated otherwise, tests shall be performed from both ends of each circuit. Connectors shall be visually inspected for scratches, pits or chips and shall be reterminated if any of these conditions exist. Each circuit leg and complete circuit shall be tested for insertion loss at 850 and 1300 nm for multimode fiber and 1310 and 1550 nm for single mode fiber using a light source similar to that used for the intended communications equipment. High-resolution optical time domain reflectometer (OTDR) tests shall be performed from one end of each fiber. Scale of the OTDR trace shall be such that the entire circuit appears over a minimum of 80 percent of the X-axis. Test all unterminated fibers.

-- End of Section --

ROOM FINISH SCHEDULE AMENDMENT 4

ROOM NO.	ROOM NAME	FLOOR	BASE	NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING			REMARKS
		MATERIAL	MATERIAL	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	HEIGHT	
B030b	CONFERENCE	CP-2	RB-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	ACT-2	NA	2743	
B044	CORRIDOR	AF-1/CP-2	RB-1	GWB	PT-5	GWB	PT-5	GWB	PT-5	GWB	PT-5	ACT-1	NA	2743	
B062	OPEN OFFICE	EXIST	RB-1	EXIST/GWB	PT-1	EXIST	-	EXIST	-	EXIST/GWB	PT-1	EXIST/ACT-1	NA	2743	
B070c	ELEVATOR LOBBY	CP-3	RB-1	GWB	PT-5	GWB	PT-5	GWB	PT-5	GWB	PT-5	ACT-1	NA	2743	
1037	OPEN OFFICE	EXIST	RB-1	GWB	PT-1	EXIST	-	EXIST	-	EXIST	-	EXIST/ACT-1	NA	2743	
1040a	OPEN OFFICE	EXIST	RB-1	EXIST	-	EXIST	-	GWB	PT-1	EXIST	-	EXIST/ACT-1	NA	2743	
1045a	STAIRS	CP-3	RB-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	EXP	NA	NA	*5
1067a	OPEN OFFICE	EXIST	RB-1	EXIST	-	GWB	PT-1	EXIST	-	EXIST	-	EXIST/ACT-1	NA	2743	
1105	CORRIDOR	CP-3	RB-1	GWB	PT-5	GWB	PT-5	GWB	PT-5	GWB	PT-5	ACT-1	NA	2743	
1106	GALLERY	CP-3	RB-1	GWB	PT-5	GWB	PT-5	GWB	PT-5	GWB	PT-5	EXP/ACT-1	NA	2743	*5
1107	STAIRS	CP-3	RB-1	GWB	PT-5	GWB	PT-5	GWB	PT-5	GWB	PT-5	EXP/ACT-1	NA	2743	*5
1108	LOBBY	CP-3	RB-1	GWB	PT-5	GWB	PT-5	GWB	PT-5	GWB	PT-5	ACT-1	NA	2743	
1121a	STORAGE	SLF-1	RB-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	ACT-1	NA	2743	
1129a	OFFICE	CP-2	RB-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	ACT-1	NA	2743	
2148a	STORAGE	SLF-1	RB-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	GWB	PT-1	ACT-1	NA	2743	



SLIP TRACK DETAIL @ FIRST FLOOR

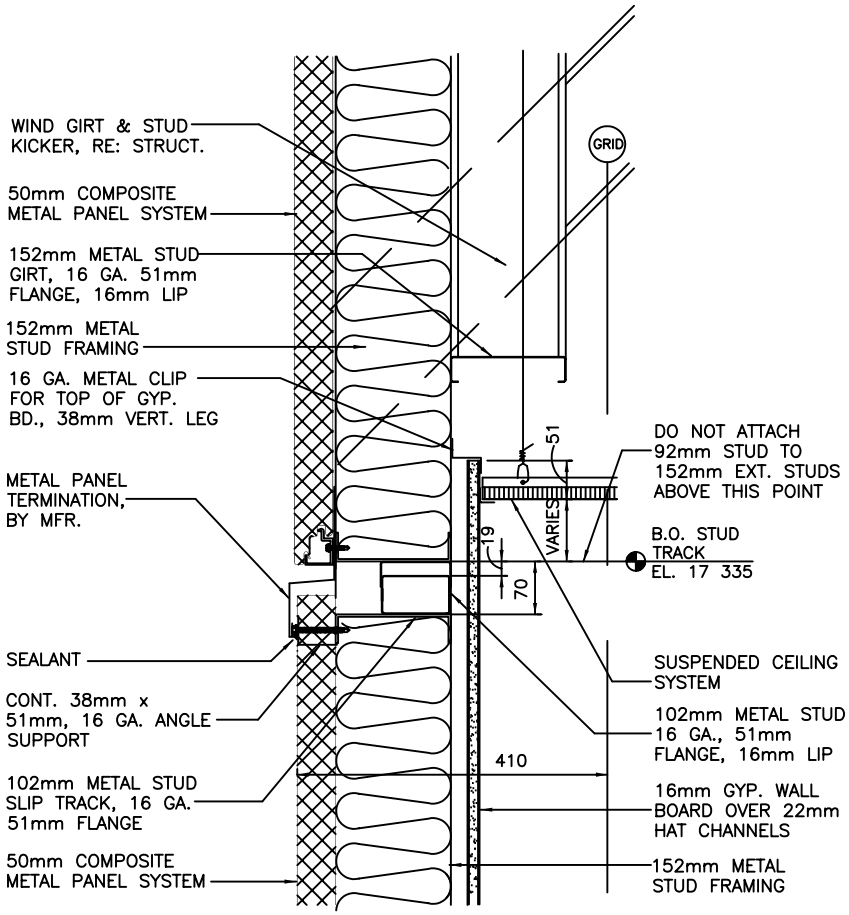
MERRICK PROJECT NO.		16014397
CLIENT PROJECT NO.		DACA45-03-B-005
REVISION DESCRIPTION		
DRAWN	DATE 1 SEPT. 03	SCALE

MERRICK
Engineers & Architects

FY 03 HQ NORTHCOM BEDDOWN / FY03 NORAD CONTINGENCY OPERATIONS CENTER

TITLE: EXPANSION JOINT DETAIL

REVISION:	DRAWING NO.	SHEET NO.
	AM #0004 A-1	



SLIP TRACK DETAIL @ SECOND FLOOR

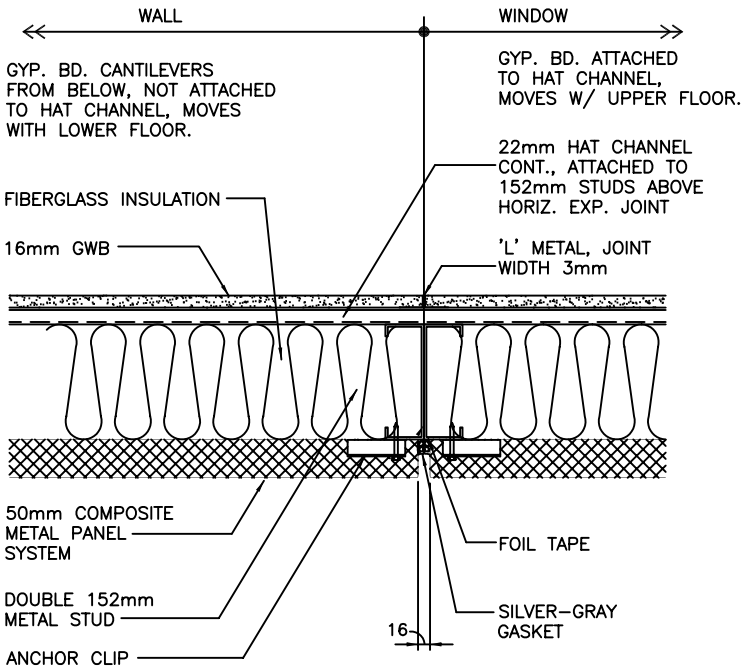
MERRICK PROJECT NO.		16014397
CLIENT PROJECT NO.		DACA45-03-B-005
REVISION DESCRIPTION		
DRAWN	DATE 1 SEPT. 03	SCALE

MERRICK
Engineers & Architects

FY 03 HQ NORTHCOM BEDDOWN /
FY03 NORAD CONTINGENCY
OPERATIONS CENTER

TITLE:
EXPANSION JOINT DETAIL

REVISION:	DRAWING NO.	SHEET NO.
	AM #0004 A-2	



VERTICAL EXPANSION JOINT @ 2nd FLOOR
HEAD CONDITION @ WINDOW JAMB

MERRICK PROJECT NO.		16014397
CLIENT PROJECT NO.		DACA45-03-B-005
REVISION DESCRIPTION		
DRAWN	DATE 1 SEPT. 03	SCALE

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FY03 NORAD CONTINGENCY
OPERATIONS CENTER

TITLE:
EXPANSION JOINT DETAIL

REVISION:	DRAWING NO.	SHEET NO.
	AM #0004 A-3	